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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  There is concern about the ability of the armed forces to meet their accession requirements as youth population declines over the next 10-15 years. This study addresses this concern by developing a way to predict the supply of high quality accessions to all four services. Accessions are then projected for the rest of the decade under various assumptions.  Data organized by Navy Recruiting District for the period 1976-1981 are examined to relate the number of high quality accession contracts to economic		

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Projections indicate that (with minor exceptions) recruiting goals can be met through the 80s if current plans are executed. Over the longer run, goals can be met if military pay keeps up with civilian youth pay and if recruiting resources are made available quickly when the economy strengthens.

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# ENLISTED SUPPLY: PAST, PRESENT, AND FUTURE

Appendixes A-F

Lawrence Goldberg

USGO



CENTER FOR NAVAL ANALYSES,

11

Work conducted under contracts N00014-76-C-0001 and N00014-80-C-0664

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## ABSTRACT

There is concern about the ability of the armed forces to meet their accession requirements as youth population declines over the next 10-15 years. This study addresses this concern by developing a way to predict the supply of high quality accessions to all four services. Accessions are then projected for the rest of the decade under various assumptions.

Data organized by Navy Recruiting District for the period 1976-1981 are examined to relate the number of high quality accession contracts to economic and policy factors, as well as to the size of the youth population. The pay of civilian youth, military pay, recruiters, advertising, and economic conditions were key determinants of recruit supply. GI Bill benefits induced many accessions. Population was important, but not as important as many expected.

Projections indicate that (with minor exceptions) recruiting goals can be met through the 80s if current plans are executed. Over the longer run, goals can be met if military pay keeps up with civilian youth pay and if recruiting resources are made available quickly when the economy strengthens.

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## APPENDIX A

### DATA

## APPENDIX A

### DATA

This appendix contains the Navy Recruiting District (NRD) level data for FY 1976T-80 that were used to estimate the regression models reported in the text (tables A-4 through A-44). Means and standard deviations of regression variables and correlations among independent variables are given in tables A-1 and A-2. Variables whose names begin with "L" are in natural logarithms.

Before listing the original data used to construct regression variables, we give the data sources and explain how the NRD level data were constructed.

#### HIGH SCHOOL GRADUATE ENLISTMENT CONTRACTS

The Defense Manpower Data Center (DMDC) provided data on enlistment contracts. DMDC renormed the data to reflect the mental group standards implemented in 1981. They used home address Zip Codes to map contracts into Navy recruiting districts, and took attrition from the delayed entry pool into account by counting only those contracts that subsequently accessed into the military in the current or following year. In addition to high school diploma holders, about 6 percent GEDs are included in the data. We doubt that this small number of GEDs biased the results.

#### RELATIVE MILITARY PAY

Relative military pay is the ratio of the Regular Military Compensation (RMC) of an unmarried  $E_1$  with less than two years of service, to the average full-time equivalent earnings of 17-21\* year old civilian males. Data on RMC came from DoD military pay tables.

Princeton University provided data on civilian earnings of youth. Princeton constructed an NRD level measure of civilian earnings for 17-21 year old civilian males by using census data from 1970, 1977, 1978, and 1979. County level data on hourly earnings of youth in 1970 were obtained from the 1970 Public Use Sample. State-level data on

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\* The average age of those sampled was 18 years old. It was the same for all districts.



hourly earnings of youth in 1969 were obtained from the 1970 Current Population Survey (CPS)\*. Ratios of state to county level hourly earnings were constructed. They were used with the 1977-79 CPSs to age the 1970 county level hourly earnings data and to obtain NRD-level estimates of hourly earnings for 1976, 1977, and 1978.\*\* The individual year estimates were averaged to obtain an estimate for 1977.\*\*\* The hourly earnings figure was multiplied by 2,080 to yield full-time equivalent civilian earnings. This was divided into RMC to yield relative military pay for the NRD.

Measures of civilian pay for the other years, FY 1976T and FY 1978-80, were constructed by using national growth rates of civilian earnings for youth from the Current Population Surveys. For national trends in RMC and civilian earnings of youth, see table A-3; also see figure A-1, which illustrates the changes in relative military pay that have occurred since 1972.

#### UNEMPLOYMENT

Unemployment is measured by the overall civilian unemployment rate for the SMSA in which the NRD's headquarters is located. The data are from the Department of Labor's Employment and Earnings, table E-1.

#### ETA PROGRAMS

Employment and Training Administration programs were divided into two categories--youth and countercyclical. Youth oriented programs consisted of Title I, II ABC, SUMMER, YCCIP and YETP; countercyclical consisted of Titles II, IID, VI, and VII. Data on regional allocations at the "prime sponsor" level, e.g., county, group of counties, or city, and total expenditures at the national level, were obtained from ETA.

Allocations for prime sponsors were mapped directly into NRDs, except for the "rest of STATE" prime sponsor, which was distributed among the "rest of STATE" counties on the basis of total population in 1970. County level allocations were added to yield a figure for the NRD.

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\* The CPS collects data on earnings in the previous year.

\*\* NRDs are groups of counties.

\*\*\* A similar approach (averaging) was used by Gray in his cross section study for the Gates Commission.

Data at the prime sponsor level on allocations were available for FY 1977-79. National level data on allocations were used to estimate figures for FY 1976T and FY 1980. For each year FY 1976T-80, national figures were used to convert allocations to expenditures. Expenditures in tables A-37 and A-38 are in thousands of dollars and are adjusted for inflation using the CPI (1977=1.0).

#### POPULATION

Census data on the population of 17-21 year old males were used to measure population in an NRD. The data were provided by the Navy Recruiting Command for 1978. For other years aggregate changes in the 17-21 population from Current Population Surveys were used. Data on population are given in table A-39 (in thousands).

#### BLACK POPULATION

Census data were also used to calculate the percentage of the 17-21 year old male population that is black. NRD-level data on black population were also provided by the Navy Recruiting Command for 1978. We assumed that the percentage of the population accounted for by blacks was constant in FY 1976T-80.

#### PRODUCTION RECRUITERS

NRD-level data on Navy recruiters in FY 1976T-80 were provided by the Navy Recruiting Command, along with NRD-level data on production recruiters for the other services in FY 1980. Aggregate data on recruiters for the other services were obtained from the other services for FY 1976T-80. These were used to estimate production recruiters at the NRD level in FY 1976T-80. We assume that the distribution of other services' recruiters among NRDs in FY 1976T-79 was the same as that in FY 1980. Navy recruiters are in man-months; other services' recruiters are in man-years.

TABLE A-1

## MEANS AND STANDARD DEVIATIONS OF REGRESSION VARIABLES

<u>Dependent Variables<sup>a</sup></u>		<u>Mean</u>	<u>Standard deviation</u>
Navy	HSGs	1.75	0.266
	White HSGs	1.74	0.293
	1-3A HSGs	1.21	0.310
	White 1-3A HSGs	1.30	0.311
	1-2 HSGs	0.81	0.327
	White 1-2 HSGs	0.92	0.314
Army	HSGs	2.00	0.376
	White HSGs	1.68	0.407
	1-3A HSGs	1.01	0.392
	White 1-3A HSGs	1.00	0.405
	1-2 HSGs	0.54	0.431
	White 1-2 HSGs	0.59	0.420
Air Force	HSGs	1.62	0.269
	White HSGs	1.60	0.298
	1-3A HSGs	1.18	0.303
	White 1-3A HSGs	1.23	0.308
	1-2 HSGs	0.70	0.344
	White 1-2 HSGs	0.78	0.328
Marine Corps	HSGs	0.94	0.283
	White HSGs	0.78	0.345
	1-3A HSGs	0.18	0.422
	White 1-3A HSGs	0.20	0.398
	1-2 HSGs	-0.33	0.461
	White 1-2 HSGs	-0.25	0.417
DoD	HSGs	3.05	0.253
	White HSGs	2.92	0.297
	1-3A HSGs	2.37	0.301
	White 1-3A HSGs	2.41	0.303
	1-2 HSGs	1.91	.339
	White 1-2 HSGs	2.00	0.320

## Independent variables

Relative military pay (LRPAY)	0.120.112
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TABLE A-1 (Cont'd)

	<u>Mean</u>	<u>Standard deviations</u>
Overall civilian unemployment rate (LUNEM)		1.770.285
Loss of GI Bill	0.80	0.400
ETA youth (LETAY)	5.29	0.233
ETA countercyclical (LETAC)		5.600.477
Total population (LPOP)	5.45	0.324
White population <sup>b</sup>		5.300.363
Black percent (BLK)	13.60	10.029
Navy recruiters (LNREC)	1.35	0.196
Army recruiters (LAREC)	-0.88	0.188
Air Force recruiters (LFREC)		-1.840.193
Marine Corps recruiters (LMREC)	-1.69	0.207

<sup>a</sup>Logarithm of enlistments per population.

<sup>b</sup>Percentage of population that is white (1-0.01 BLK) times total population.

TABLE A-2

## CORRELATIONS AMONG INDEPENDENT VARIABLES

	<u>LFREC</u>	<u>LAREC</u>	<u>LNREC</u>	<u>LMREC</u>	<u>LETAC</u>	<u>LETAY</u>	<u>LPOP</u>	<u>LRPAY</u>	<u>LJUNEM</u>	<u>BLK</u>	<u>VEAP</u>
LFREC	1.0	0.54	0.60	0.46	0.15	0.29	-0.19	-0.048	0.23	-0.37	-0.05
LAREC		1.0	0.37	0.66	-0.005	-0.089	0.098	-0.35	0.20	-0.71	-0.11
LNREC			1.0	0.26	0.031	0.092	-0.20	0.076	0.11	-0.32	0.053
LMREC				1.0	0.16	0.15	0.065	-0.18	0.19	-0.49	-0.12
LETAC					1.0	0.63	0.34	0.008	0.22	-0.066	0.15
LETAY						1.0	0.22	0.11	0.27	0.13	0.18
LPOP							1.0	-0.23	0.30	-0.13	0.067
LRPAY								1.0	0.19	0.31	-0.38
LJUNEM									1.0	-0.15	-0.41
BLK										1.0	0.00
VEAP											1.0

TABLE A-3

## MILITARY AND CIVILIAN PAY, FY 1972-82

Fiscal year	Regular military compensation (RMC) <sup>a</sup>	Civilian earnings of youth (CEY) <sup>b</sup>	Relative military pay <sup>c</sup>	
			RMC/CEY	(1973 = 1.00)
1972	4,495	4,016	1.12	0.98
1973	5,229	4,575	1.14	1.00
1974	5,484	5,071	1.08	0.95
1975	6,002	5,502	1.09	0.96
1976	6,387	5,632	1.13	0.99
1977	6,732	6,027	1.12	0.98
1978	7,205	6,912	1.04	0.91
1979	7,617	7,471	1.02	0.89
1980	8,175	7,753	1.05	0.92
1981	9,302	8,252	1.13	0.99
1982	10,391	8,780 (est)	1.18 (est)	1.04 (est)

<sup>a</sup>Annual earnings for an unmarried "E1" with less than two years of service. Source is DoD military pay tables.

<sup>b</sup>Median year-round full-time earnings for 14-19 year old civilian males (average age 18). Source is the Current Population Survey. The table gives trends in CEY at the national level. Data on full-time equivalent average earnings in 1977 of youths, including part-time workers, were obtained from Princeton University. To measure CEY at the district level, data from table A-3 on the growth of earnings at the national level were used to age the observations at the district level for FY 1977.

<sup>c</sup>Differs from data in table 2 of the main body because those earnings are unweighted averages and include part-time workers whereas these are weighted averages for year-round full-time workers only.

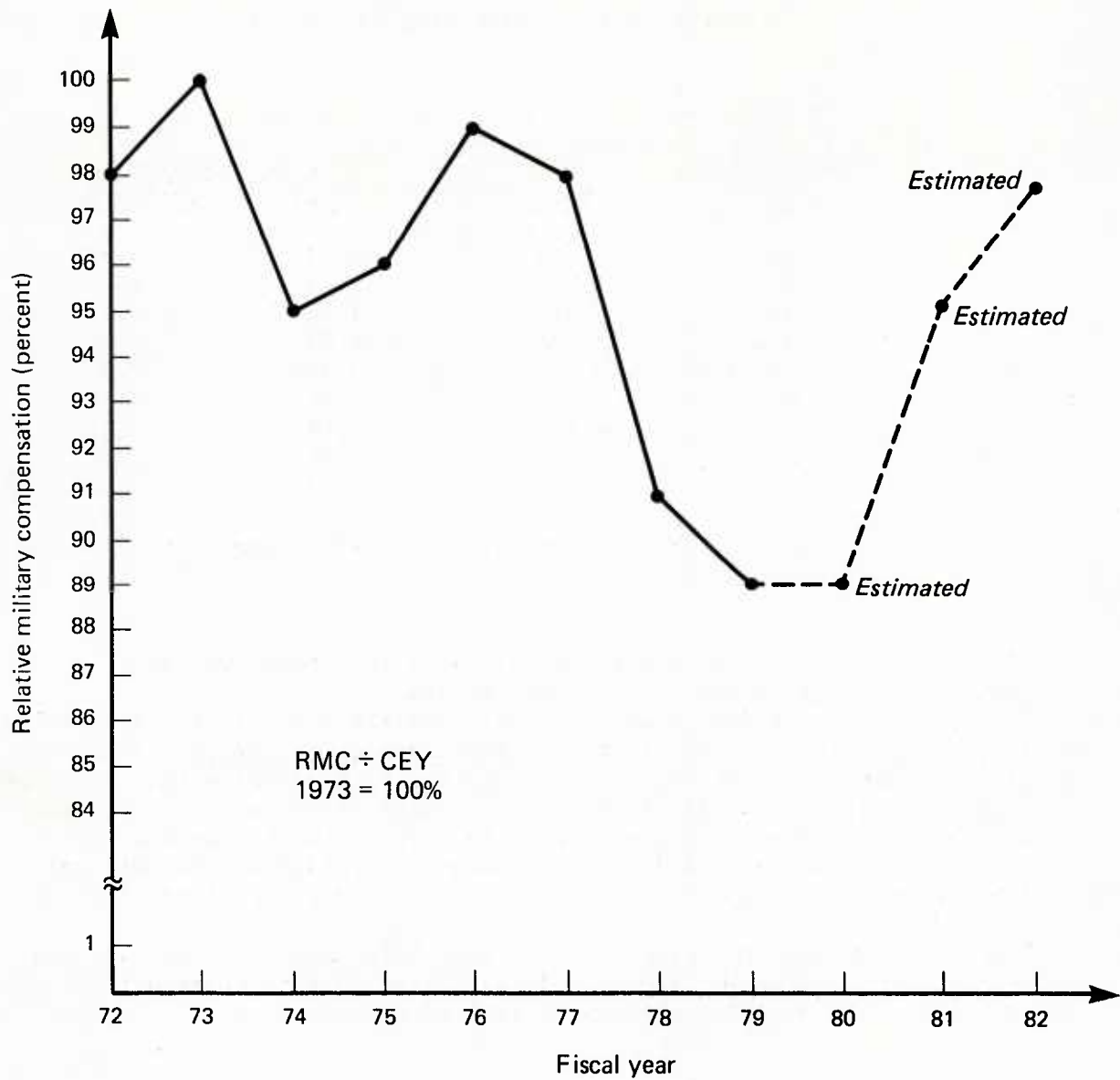


FIG. A-1: RELATIVE MILITARY COMPENSATION AS A PERCENT OF  
1973 RELATIVE MILITARY COMPENSATION

TABLE A-4

NAVY HSGs

LOC	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	2212	2185	1735	1502	1821
ALBUQUERQUE	2547	2228	2224	2224	2627
BUFFALO	2251	2080	1752	1579	1946
NEW YORK	2424	2700	1934	1750	2285
FARRISEBURG	1395	1290	1166	1034	1371
PHILADELPHIA	1508	1519	1391	1777	2001
NEWARK	1762	1789	1447	1483	1754
ATLANTA	1173	1378	1200	1219	1478
COLUMBIA	695	545	514	1147	1309
JACKSONVILLE	1293	1710	1671	1620	1801
MEMPHIS	547	1021	1031	1015	1185
MIAMI	1700	1792	1587	1609	1719
MONTGOMERY	1328	1457	1308	1301	1396
NASHVILLE	1128	1288	865	963	1351
RALEIGH	1547	1555	1331	1498	1679
CLEVELAND	1851	1425	1184	1096	1785
CELLULES	2392	2081	1529	1096	2006
DETROIT	3766	3461	2564	1382	3187
INDIANAPOLIS	1300	1057	702	681	1145
LOUISVILLE	1693	1051	822	851	1154
PITTSBURGH	1594	1203	1320	1239	1522
RICHMOND	556	830	746	757	1016
WASHINGTON DC	1742	1825	1654	1741	2165
CHICAGO	2089	1751	1187	972	1752
ST LOUIS	1480	1393	1166	1022	1559
KANSAS CITY	1112	1075	857	907	1183
MINNEAPOLIS	1568	1607	953	811	1059
OMAHA	1160	1020	792	683	940
PEORIA	1364	1177	908	864	1544
MILWAUKEE	1336	1194	769	656	850
ALBUQUERQUE	1207	1171	914	917	1073
CALLAS	1295	1339	1095	971	1251
GENVER	1337	1170	872	696	1155
POLSKIN	1115	1239	1030	880	1140
LITTLE ROCK	1058	1046	877	795	1021
NEW ORLEANS	627	681	609	768	718
OKLAHOMA CITY	781	686	489	467	573
SAN ANTONIO	1065	1058	736	633	1004
LOS ANGELES	3740	3595	2470	2038	2944
FOFILLAND	1781	1796	1055	1278	1659
SAN DIEGO	2291	2354	1889	1374	1974
SAN FRANCISCO	4636	4465	2965	2520	3129
SEATTLE	1461	1416	1015	969	1230



TABLE A-5

NAVY 1-3A HSGs

NBD	FY-1976I	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	1550	1424	1093	909	1127
BOSTON	2009	1847	1339	1339	1593
BUFFALO	1635	1427	1139	968	1243
NEW YORK	1492	1436	1007	868	1234
PARISSEUR	914	811	762	620	824
PHILADELPHIA	1146	1041	735	850	1041
NEWARK	1065	1079	811	728	857
ATLANTA	664	728	612	561	793
COLLEGE	526	452	393	457	687
JACKSONVILLE	950	1016	875	804	992
MEMPHIS	504	434	430	353	531
MIAMI	1162	1174	1047	1002	1144
MONTGOMERY	816	806	642	521	749
NASHVILLE	704	655	508	507	795
RALEIGH	906	820	632	661	868
CLEVELAND	1254	856	721	661	979
COLUMBUS	1570	1252	912	661	1155
DETROIT	2307	1652	1506	766	1763
INDIANAPOLIS	860	653	480	413	706
LOUISVILLE	641	551	482	474	630
PITTSBURGH	1062	770	785	672	835
RICHMOND	544	467	415	406	587
WASHINGTON DC	1055	1109	968	967	1242
CHICAGO	1225	954	763	495	950
ST LOUIS	979	644	689	602	853
KANSAS CITY	726	661	541	557	711
MINNEAPOLIS	1108	1106	635	577	710
OMAHA	649	653	518	409	617
PEORIA	959	781	602	541	973
MILWAUKEE	919	815	517	420	563
ALBUQUERQUE	677	579	460	503	596
DALLAS	629	622	641	596	744
DENVER	542	781	584	474	795
HOLSTON	654	656	580	471	637
LITTLE ROCK	567	466	445	378	553
NEW ORLEANS	346	316	290	350	371
OKLAHOMA CITY	544	355	288	259	334
SAN ANTONIO	570	525	390	399	514
LOS ANGELES	2258	1915	1433	1159	1606
PORTLAND	1258	1229	720	897	1163
SAN DIEGO	1575	1442	1209	862	1305
SAN FRANCISCO	2999	2456	1793	1383	1722
SEATTLE	1052	907	715	658	827

TABLE A-6

NAVY 1-2 HSGs

REF	EY-1975I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1041	987	732	607	767
BOSTON	1330	1266	913	902	1084
BUFFALO	1156	1024	840	667	888
NEW YORK	964	900	662	535	801
HARRISBURG	633	541	523	426	549
PHILADELPHIA	781	685	498	521	680
NEWARK	649	724	507	466	571
ATLANTA	421	440	390	348	515
COLUMBIA	360	281	253	298	432
JACKSONVILLE	659	650	531	542	657
MEMPHIS	316	260	245	211	319
MIAMI	763	820	720	695	802
MONTGOMERY	450	450	415	332	500
NASHVILLE	430	407	314	328	541
RALEIGH	553	505	419	413	553
CLEVELAND	849	557	477	452	672
COLUMBUS	1037	847	612	513	784
DETROIT	1521	1182	953	773	1236
INDIANAPOLIS	562	457	343	282	491
LOUISVILLE	407	366	337	289	404
PITTSBURGH	682	472	494	416	555
RICHMOND	334	304	283	269	420
WASHINGTON DC	752	766	670	645	871
CHICAGO	808	622	483	330	641
ST LOUIS	677	580	466	402	568
KANSAS CITY	526	453	371	382	505
MINNEAPOLIS	753	750	442	380	506
OMAHA	588	453	366	263	410
PEORIA	667	552	415	359	622
MILWAUKEE	637	599	369	298	413
ALBUQUERQUE	446	403	320	329	408
CALLAS	580	584	441	435	515
DENVER	669	551	420	325	543
HOLSTON	478	465	392	316	434
LITTLE ROCK	369	310	291	229	357
NEW ORLEANS	203	185	190	207	223
OKLAHOMA CITY	378	262	197	167	215
SAN ANTONIO	363	342	264	271	346
LOS ANGELES	1464	1255	968	770	1069
PORTLAND	875	855	519	630	875
SAN DIEGO	1057	978	852	608	906
SAN FRANCISCO	2018	1657	1199	920	1188
SEATTLE	779	639	499	479	620

TABLE A-7

## NAVY WHITE HSGs

ABD	EX-12761	EX-1277	EX-1278	EX-1279	EX-1280
ALBANY	2094	2110	1646	1422	1713
BOSTON	2904	2772	2124	2151	2562
BUFFALO	2168	1980	1637	1476	1834
NEW YORK	1905	2035	1385	1171	1603
HARRISBURG	1367	1251	1139	1005	1338
PHILADELPHIA	1441	1398	945	1132	1422
NEWARK	1505	1554	1148	1113	1381
ATLANTA	913	1022	803	697	1059
COLUMBIA	637	587	522	621	835
JACKSONVILLE	1241	1478	1391	1269	1460
MEMPHIS	602	586	545	455	607
MIAMI	1549	1633	1426	1405	1505
MONTGOMERY	953	1100	876	779	947
NASHVILLE	1013	1118	755	797	1183
RALEIGH	1191	1203	571	979	1229
CLEVELAND	1667	1261	1032	930	1476
COLUMBUS	2180	1850	1375	923	1806
DETROIT	3434	3059	2248	1105	2858
INDIANAPOLIS	1170	938	623	617	1037
LOUISVILLE	986	930	762	749	1039
PITTSBURGH	1504	1221	1265	1131	1400
RICHMOND	672	621	563	506	714
WASHINGTON DC	1379	1447	1206	1173	1534
CHICAGO	1535	1225	802	649	1223
ST LOUIS	1303	1242	1050	917	1364
KANSAS CITY	1058	1006	815	827	1067
MINNEAPOLIS	1560	1592	951	797	1051
OMAHA	1159	999	776	671	920
PEORIA	1325	1139	875	840	1491
MILWAUKEE	1294	1121	733	613	815
ALBUQUERQUE	1169	1128	890	894	1040
DALLAS	1121	1157	935	810	1021
DENVER	1298	1142	841	671	1137
HOUSTON	919	989	790	662	898
LITTLE ROCK	766	796	620	537	802
NEW ORLEANS	461	460	417	468	484
OKLAHOMA CITY	727	614	449	420	535
SAN ANTONIO	1010	599	704	786	950
LOS ANGELES	3466	3198	2177	1707	2406
PORTLAND	1764	1783	1043	1269	1645
SAN DIEGO	2206	2306	1824	1309	1894
SAN FRANCISCO	4484	4234	2775	2349	2925
SEATTLE	1451	1405	1009	958	1218

TABLE A-8

## NAVY WHITE 1-3A HSGs

DEQ	EY-1976I	EY-1977I	EY-1978	EY-1979	EY-1980
ALBANY	1513	1401	1062	893	1107
BOSTON	1992	1835	1325	1322	1569
BUFFALO	1614	1394	1105	944	1220
NEW YORK	1249	1220	830	705	992
HARRISBURG	905	790	754	611	818
PHILADELPHIA	998	901	598	695	917
NEWARK	994	1007	653	829	917
ATLANTA	592	643	729	653	829
COLUMBIA	448	378	524	455	727
JACKSONVILLE	894	950	320	387	593
MEMPHIS	409	364	797	732	913
MIAMI	1113	1130	333	269	428
MONTGOMERY	670	706	1002	961	1098
NASHVILLE	665	618	560	452	647
RALEIGH	804	734	479	466	761
CLEVELAND	1178	847	561	577	769
COLUMBUS	1485	1197	676	604	919
DETROIT	2202	1764	862	622	1097
INDIANAPOLIS	833	662	1423	678	1711
LOUISVILLE	609	522	459	394	679
PITTSBURGH	1018	737	466	441	604
RICHMOND	459	419	769	645	808
WASHINGTON DC	989	980	370	343	511
CHICAGO	1038	771	807	793	1094
ST LOUIS	916	788	579	416	817
KANSAS CITY	713	641	648	566	813
MINNEAPOLIS	1103	1102	528	533	683
OMAHA	842	686	634	531	707
PEORIA	951	768	514	406	614
MILWAUKEE	924	798	591	535	962
ALBUQUERQUE	665	571	526	408	556
DALLAS	772	796	453	497	585
DENVER	932	774	598	560	706
HOUSTON	641	656	573	463	792
LITTLE ROCK	499	452	515	429	600
NEW ORLEANS	299	278	398	333	524
OKLAHOMA CITY	521	381	242	301	321
SAN ANTONIO	548	518	281	244	328
LOS ANGELES	2168	1814	380	390	504
PORTLAND	1252	1226	1354	1062	1494
SAN DIEGO	1533	1411	712	896	1161
SAN FRANCISCO	2941	2430	1185	841	1278
SEATTLE	1087	903	1726	1335	1676
			712	655	822

TABLE A-9

## NAVY WHITE 1-2 HSGs

NRD	EY-12761	EY-1277	EY-1278	EY-1272	EY-1289
ALBANY	1027	976	712	599	759
BOSTON	1327	1258	902	892	1069
BUFFALO	1146	1009	824	661	876
NEW YORK	854	797	560	460	680
HARRISBURG	629	537	518	421	545
PHILADELPHIA	708	611	436	459	619
NEWARK	626	693	473	442	544
ATLANTA	393	409	355	307	484
COLUMBIA	328	255	220	273	397
JACKSONVILLE	632	652	502	517	627
MEMPHIS	289	236	215	175	280
MIAMI	744	805	698	675	785
MONTGOMERY	420	454	382	311	453
NASHVILLE	412	397	305	312	521
RALEIGH	518	473	386	379	510
CLEVELAND	811	572	459	426	510
COLUMBUS	1008	825	586	494	760
DETROIT	1480	1140	913	736	1197
INDIANAPOLIS	549	481	334	272	478
LOUISVILLE	399	353	327	273	389
PITTSBURGH	668	457	485	405	547
RICHMOND	299	287	266	242	375
WASHINGTON DC	739	702	603	560	802
CHICAGO	720	525	404	290	578
ST LOUIS	640	556	446	383	552
KANSAS CITY	520	443	364	368	494
MINNEAPOLIS	791	788	442	377	504
OHAMA	585	489	364	261	409
PEORIA	664	542	408	359	657
MILWAUKEE	631	593	366	292	411
ALBUQUERQUE	441	398	317	324	402
DALLAS	556	569	426	419	501
DENVER	667	588	415	319	543
HOUSTON	457	450	363	295	417
LITTLE ROCK	344	294	271	211	347
NEW ORLEANS	182	174	167	186	201
OKLAHOMA CITY	370	255	192	161	215
SAN ANTONIO	352	336	263	267	343
LOS ANGELES	1446	1252	930	734	1014
PORTLAND	871	856	516	629	873
SAN DIEGO	1073	959	639	594	893
SAN FRANCISCO	1992	1669	1167	896	1164
SEATTLE	775	637	497	477	616

TABLE A-10

## ARMY HSGs

ARE	FY-1976	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	2220	2058	1430	1362	1456
BOSTON	3168	3175	2723	2437	2418
ELFFALO	2336	2110	1577	1501	1528
NEW YORK	3712	3458	2479	2167	2102
HARRISEURG	1682	1780	1486	1391	1496
PHILADELPHIA	2151	2247	1818	1495	1512
NEWARK	2276	1782	1301	1262	1300
ATLANTA	2528	2427	2314	2263	1989
COLLEGEIA	2283	2442	2193	2194	2152
JACKSONVILLE	4865	4707	4662	4535	4583
MEMPHIS	2410	2390	2025	1879	1993
MIAMI	2730	3081	2637	2153	2053
MONTGOMERY	2755	2771	2502	2193	1955
NASHVILLE	2093	1813	1474	1485	1572
KALEICH	3587	3772	3418	2810	2821
CLEVELAND	2298	2151	1632	1454	1674
COLUMBUS	2665	2708	2180	1955	2409
CEIRCI	3429	2565	2089	1895	3022
INDIANAPOLIS	1441	1421	1058	1225	1382
LOUISVILLE	1801	1870	1612	1573	1714
PITTSBURGH	2040	1552	1177	1091	1291
RICHMOND	2252	2333	2074	1885	1635
WASHINGTON DC	2814	2552	2550	2442	2459
CHICAGO	2555	2265	1808	1798	1989
ST LOUIS	1592	1655	1569	1605	1620
KANSAS CITY	1492	1406	915	994	1129
MINNEAPOLIS	1557	1585	1054	1145	1232
OMAHA	1430	1437	1129	1013	1033
PEORIA	1508	1541	1238	1201	1389
MILWAUKEE	1447	1360	908	789	1015
ALBUQUERQUE	1555	1414	1106	1155	1202
CALLAS	1542	1557	1002	1027	1150
DENVER	1175	541	818	746	871
POLSTON	1240	1180	1106	1133	1059
LITTLE ROCK	1515	1457	1456	1256	1364
NEW ORLEANS	997	1031	903	974	826
OKLAHOMA CITY	1022	824	747	691	636
SAN ANTONIO	1264	1296	1125	1184	1149
LOS ANGELES	4005	3379	2498	1914	2315
PORTLAND	1593	1134	969	944	1125
SAN DIEGO	2516	2431	1873	1674	1910
SAN FRANCISCO	4315	4348	3322	2794	3167
SEATTLE	1504	1223	930	905	1081

TABLE A-11

ARMY 1-3A HSGs

REG	FY-1976	FY-1977	FY-1978	FY-1979	FY-1980
ALEANY	1246	1079	677	616	678
BOSTON	2054	1753	1328	1170	1197
BUFFALO	1507	1181	834	732	791
NEW YORK	1513	1126	730	645	584
PARISBURG	1114	507	752	681	736
PHILADELPHIA	551	600	617	409	521
NEWARK	1122	795	554	425	471
ATLANTA	502	647	461	413	376
COLUMBIA	765	465	357	286	287
JACKSONVILLE	1488	573	780	605	705
MEMPHIS	520	355	277	281	347
MIAMI	1280	1012	753	607	678
MONTGOMERY	1037	650	490	429	391
NASHVILLE	531	680	484	507	569
RALEIGH	1465	529	719	559	581
CLEVELAND	1195	503	662	585	712
COLLEGE	1320	1235	919	790	998
DETROIT	1675	1245	888	761	1321
INDIANAPOLIS	775	726	499	522	662
LOUISVILLE	750	650	573	558	713
PITTSBURGH	1102	658	441	403	537
RICHMOND	502	570	548	472	422
WASHINGTON DC	1191	533	780	760	825
CHICAGO	1260	837	642	634	780
ST LOUIS	873	712	627	636	512
KANSAS CITY	762	684	430	457	567
MINNEAPOLIS	585	505	597	616	636
OMAHA	883	609	622	491	553
PEORIA	576	834	648	594	700
MILWAUKEE	584	771	479	409	537
ALBUQUERQUE	618	477	374	355	442
CALLAS	577	538	345	307	391
DENVER	691	496	424	413	476
POLSTON	421	350	337	344	372
LITTLE ROCK	400	306	290	279	325
NEW ORLEANS	235	164	119	133	143
OKLAHOMA CITY	544	382	298	287	277
SAN ANTONIO	575	352	317	385	370
LOS ANGELES	1523	1312	482	700	906
PORTLAND	1035	691	558	526	677
SAN DIEGO	1293	1133	847	745	918
SAN FRANCISCO	1507	1564	1140	996	1281
SEATTLE	544	665	513	484	593

TABLE A-12

ARMY 1-2 HSGs

NEO	FY-1976I	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	555	758	467	408	458
BOSTON	1461	1114	873	758	808
BUFFALO	1065	791	567	480	509
NEW YORK	522	657	426	373	335
HARRISBURG	752	614	473	426	496
PHILADELPHIA	604	512	381	240	344
NEWARK	751	457	313	257	308
ATLANTA	512	377	239	211	220
COLLEGEIA	414	227	161	146	157
JACKSONVILLE	411	563	430	323	377
MEMPHIS	255	197	136	138	193
MIAMI	680	653	455	372	445
MONTGOMERY	531	247	209	205	256
NASHVILLE	540	293	289	285	354
RALEIGH	752	463	347	292	329
CLEVELAND	621	589	414	343	439
COLLEGE	650	775	588	480	663
DETROIT	1136	799	558	484	656
INDIANAPOLIS	515	471	305	316	417
LOUISVILLE	462	371	349	304	408
PITTSBURGH	744	452	273	237	338
RICHMOND	520	317	324	253	288
WASHINGTON DC	796	621	491	473	540
CHICAGO	618	515	377	390	497
ST LOUIS	596	443	394	389	433
KANSAS CITY	505	460	277	290	374
MINNEAPOLIS	677	614	419	438	421
OMAHA	613	564	397	311	373
PEORIA	690	582	424	382	448
MILWAUKEE	683	511	321	269	372
ALBUQUERQUE	369	291	226	218	276
CALLAS	356	344	205	185	249
DENVER	476	356	285	278	313
FOLSOM	275	237	214	214	229
LITTLE ROCK	236	182	164	158	197
NEW ORLEANS	127	97	67	69	86
OKLAHOMA CITY	403	260	198	174	172
SAN ANTONIO	346	253	199	222	244
LOS ANGELES	1222	829	560	447	606
PORTLAND	752	491	381	346	474
SAN DIEGO	568	759	549	483	588
SAN FRANCISCO	1274	1030	728	624	848
SEATTLE	657	458	343	309	434



TABLE A-13

## ARMY WHITE HSGs

NRD	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1921	1750	1222	1133	1217
BOSTON	3195	3010	2571	2292	2289
BUFFALO	2104	1891	1382	1340	1369
NEW YORK	1993	1794	1284	1080	1066
HARRISBURG	1767	1667	1402	1311	1404
PHILADELPHIA	1077	1046	816	620	721
NEWARK	1526	1134	615	721	829
ATLANTA	962	827	632	544	633
COLUMBIA	519	388	311	362	412
JACKSONVILLE	3559	3226	3267	3071	3334
MEMPHIS	550	420	314	404	462
MIAMI	1732	1633	1161	951	1100
MONTGOMERY	999	844	534	529	660
NASHVILLE	1432	1220	921	989	1150
RALEIGH	1361	1120	879	713	973
CLEVELAND	1641	1525	1099	970	1257
COLUMBUS	2219	2198	1738	1467	1966
DETROIT	2576	2269	1486	1338	2303
INDIANAPOLIS	1216	1220	866	972	1175
LOUISVILLE	1463	1472	1250	1182	1396
PITTSBURGH	1729	1277	943	854	1040
RICHMOND	711	638	521	477	551
WASHINGTON DC	1405	1358	1078	986	1173
CHICAGO	1492	1214	921	885	1138
ST LOUIS	1234	1203	1135	1148	1395
KANSAS CITY	1302	1130	813	776	925
MINNEAPOLIS	1545	1561	1036	1108	1208
OMAHA	1350	1385	1078	962	982
PEORIA	1407	1446	1148	1103	1285
MILWAUKEE	1341	1256	844	704	929
ALBUQUERQUE	1402	1286	1026	1069	1144
DALLAS	841	846	511	585	709
DENVER	1049	858	745	670	804
HOUSTON	640	548	504	547	590
LITTLE ROCK	549	541	496	477	545
NEW ORLEANS	262	269	220	271	258
OKLAHOMA CITY	803	642	544	526	497
SAN ANTONIO	1193	1101	938	972	1005
LDS ANGELES	3197	2596	1903	1431	1795
PORTLAND	1571	1124	955	929	1108
SAN DIEGO	2305	2214	1712	1504	1735
SAN FRANCISCO	3708	3684	2840	2358	2787
SEATTLE	1460	1181	901	868	1054

TABLE A-14

## ARMY WHITE 1-3A HSGs

NEQ	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1276	1027	654	589	643
BOSTON	2049	1715	1300	1144	1178
BUFFALO	1451	1144	805	713	767
NEW YORK	1052	756	519	436	421
HARRISBURG	1097	884	743	671	720
PHILADELPHIA	691	597	459	298	413
NEWARK	940	642	462	357	416
ATLANTA	612	466	307	278	302
COLUMBIA	349	207	140	175	210
JACKSONVILLE	1283	849	668	511	620
MEMPHIS	307	199	150	178	241
MIAMI	1137	885	637	524	612
MONTGOMERY	598	428	242	246	337
NASHVILLE	793	585	422	448	534
RALEIGH	811	559	399	346	449
CLEVELAND	1032	804	584	495	658
COLUMBUS	1240	1142	855	717	941
DETROIT	1486	1131	769	687	1199
INDIANAPOLIS	731	692	458	491	632
LOUISVILLE	683	607	530	491	669
PITTSBURGH	1018	612	398	372	502
RICHMOND	491	358	309	253	314
WASHINGTON DC	908	706	576	549	671
CHICAGO	979	650	488	495	627
ST LOUIS	779	649	569	569	465
KANSAS CITY	740	644	415	423	533
MINNEAPOLIS	982	898	594	611	633
OMAHA	871	805	615	486	547
PEORIA	948	816	635	573	688
MILWAUKEE	937	754	466	395	531
ALBUQUERQUE	603	462	360	343	432
DALLAS	440	399	258	272	359
DENVER	659	482	409	390	465
HOUSTON	347	284	260	277	329
LITTLE ROCK	291	255	226	221	273
NEW ORLEANS	145	129	91	99	110
OKLAHOMA CITY	499	367	279	256	255
SAN ANTONIO	546	368	294	350	357
LOS ANGELES	1753	1199	808	636	838
PORTLAND	1028	687	557	523	674
SAN DIEGO	1350	1098	819	717	879
SAN FRANCISCO	1798	1497	1072	929	1217
SEATTLE	931	660	506	476	587

TABLE A-15

## ARMY WHITE 1-2 HSGs

ARO	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	927	736	458	396	442
BOSTON	1434	1095	862	748	801
BUFFALO	1039	775	554	470	501
NEW YORK	712	470	331	274	275
HARRISBURG	746	602	469	423	487
PHILADELPHIA	490	427	310	202	298
NEWARK	674	401	247	227	287
ATLANTA	400	310	204	170	195
COLUMBIA	228	139	79	112	134
JACKSONVILLE	741	521	387	291	356
MEMPHIS	198	144	101	104	161
MIAMI	823	604	431	347	420
MONTGOMERY	368	260	147	151	234
NASHVILLE	491	361	259	261	342
RALEIGH	502	351	241	210	277
CLEVELAND	747	543	381	302	421
COLUMBUS	806	736	581	452	636
DETROIT	1039	741	503	455	803
INDIANAPOLIS	494	454	248	301	405
LOUISVILLE	435	356	331	288	395
PITTSBURGH	707	426	254	223	325
RICHMOND	345	247	214	181	221
WASHINGTON DC	665	521	399	393	474
CHICAGO	646	441	313	332	435
ST LOUIS	546	413	365	362	421
KANSAS CITY	494	439	272	274	363
MINNEAPOLIS	677	611	417	436	422
OMAHA	605	562	394	309	371
PEORIA	676	572	416	371	443
MILWAUKEE	673	504	317	264	369
ALBUQUERQUE	360	283	219	212	271
DALLAS	300	288	169	172	238
DENVER	465	345	279	273	309
HOUSTON	239	209	183	189	215
LITTLE ROCK	201	162	141	141	180
NEW ORLEANS	93	84	58	57	74
OKLAHOMA CITY	376	254	192	160	161
SAN ANTONIO	338	246	185	209	241
LOS ANGELES	1150	786	525	421	576
PORTLAND	748	489	380	345	473
SAN DIEGO	949	738	534	473	572
SAN FRANCISCO	1227	997	689	597	811
SEATTLE	648	456	339	307	431

TABLE A-16

## AIR FORCE HSGs

NBD	FY-1975	FY-1977	FY-1978	FY-1979	FY-1980
ALEANY	1586	2038	1580	1545	1528
BOSTON	2627	2832	2325	2317	2893
BUFFALO	1710	1895	1508	1531	2099
NEW YORK	2021	2226	1856	1795	2516
HARRISBURG	1229	1454	1172	1096	1421
PHILADELPHIA	1294	1522	1271	1156	1622
NEWARK	1260	1178	977	1062	1503
ATLANTA	778	854	688	921	1355
COLUMBIA	672	751	732	794	1189
JACKSONVILLE	1195	1276	1173	1233	1699
MEMPHIS	970	554	855	819	1221
MIAMI	1622	1642	1420	1478	2176
MONTGOMERY	1006	1109	1004	1176	1741
NASHVILLE	1035	1112	979	1049	1648
RALEIGH	1210	1472	1260	1338	1870
CLEVELAND	1763	1618	1192	1078	1728
COLUMBUS	1585	1746	1279	1441	2178
DETROIT	2181	2073	1494	1546	2563
INDIANAPOLIS	1013	1020	678	675	1302
LOUISVILLE	998	522	725	701	1291
PITTSBURGH	1228	1332	1097	1048	1555
RICHMOND	858	730	651	720	897
WASHINGTON DC	1144	1407	1349	1381	1722
CHICAGO	1236	1160	833	885	1587
ST LOUIS	1360	1533	1137	942	1491
KANSAS CITY	518	1055	830	718	1119
MINNEAPOLIS	1056	1273	1114	858	1113
CHICAGO	856	586	923	734	1048
PEORIA	1042	1057	865	870	1523
MILWAUKEE	1037	1047	835	744	1203
ALBUQUERQUE	791	561	806	852	1125
DALLAS	1178	1284	851	847	1406
DENVER	752	943	692	806	1158
FORTSON	767	830	662	622	944
LITTLE ROCK	1019	572	799	733	1115
NEW ORLEANS	492	455	468	422	679
OKLAHOMA CITY	573	725	500	411	688
SAN ANTONIO	689	1086	834	841	1199
LOS ANGELES	2305	2156	1817	1791	2624
PORTLAND	1029	1062	799	991	1511
SAN DIEGO	1864	1939	1468	1245	2031
SAN FRANCISCO	2627	2601	2288	2218	2977
SEATTLE	557	596	693	811	1286

TABLE A-17

## AIR FORCE 1-3A HSGs

NET	FY_1976I	FY_1977	FY_1978	FY_1979	FY_1980
ALBANY	1616	1529	1094	1049	1202
ECSTON	2037	1613	1595	1493	1808
BUFFALO	1421	1406	1032	1045	1339
NEW YORK	1536	1441	1165	1030	1374
PAFFISBURG	1043	882	802	728	899
PHILADELPHIA	595	1000	808	661	885
NEWARK	591	689	663	641	841
ATLANTA	581	472	354	481	659
COLUMBIA	444	362	361	378	533
JACKSONVILLE	518	681	752	722	911
MEMPHIS	615	558	440	348	517
MIAMI	1263	1156	923	911	1284
MONTGOMERY	683	670	577	620	838
NASHVILLE	743	656	596	594	890
RALEIGH	146	705	667	714	867
CLEVELAND	1412	713	839	729	1159
COLUMBUS	1527	1195	833	904	1303
DETROIT	1803	1436	1077	1072	1690
INDIANAPOLIS	780	757	509	462	842
LOUISVILLE	711	554	447	422	727
PITTSBURGH	559	797	720	627	888
RICHMOND	612	457	685	395	494
WASHINGTON DC	893	568	696	680	997
CHICAGO	591	617	558	580	1004
ST LOUIS	1066	1103	784	633	901
KANSAS CITY	725	735	574	466	716
MINNEAPOLIS	625	590	624	624	785
CHAMPA	676	612	634	502	705
PEORIA	631	723	610	617	1042
MILWAUKEE	617	786	610	518	802
ALBUQUERQUE	571	610	478	471	631
CALLAS	664	651	523	515	622
DENVER	596	723	496	552	781
FOLSTON	545	522	415	375	562
LITTLE ROCK	691	473	460	382	573
NEW ORLEANS	357	284	250	217	327
OKLAHOMA CITY	453	457	330	241	429
SAN ANTONIO	657	735	539	517	673
LOS ANGELES	1746	1402	1153	1116	1589
PORTLAND	623	603	572	693	1013
SAN DIEGO	1445	1366	1025	825	1363
SAN FRANCISCO	2003	1797	1581	1410	1807
SEATTLE	777	702	503	576	853

TABLE A-18

## AIR FORCE 1-2 HSGs

REG	EY-15761	EY-1577	EY-1578	EY-1579	EY-1580
ALBANY	1116	1015	692	669	761
ALBANY	1236	1061	1042	922	1133
ALBANY	1028	572	704	693	893
ALBANY	556	842	653	558	769
ALBANY	685	565	503	447	568
ALBANY	620	636	468	398	518
ALBANY	645	426	398	385	525
ALBANY	353	266	193	256	408
ALBANY	257	213	213	217	312
ALBANY	588	547	475	444	534
ALBANY	345	312	238	166	275
ALBANY	642	755	620	565	834
ALBANY	416	357	318	352	490
ALBANY	453	353	359	376	539
ALBANY	490	402	391	402	500
ALBANY	538	449	568	465	762
ALBANY	595	776	537	533	828
ALBANY	1176	560	758	665	1079
ALBANY	496	452	329	322	537
ALBANY	424	354	273	243	438
ALBANY	640	500	463	359	564
ALBANY	388	277	245	247	309
ALBANY	558	605	516	526	643
ALBANY	646	407	344	356	685
ALBANY	691	737	491	404	574
ALBANY	480	476	367	298	458
ALBANY	552	696	554	395	555
ALBANY	451	403	408	338	467
ALBANY	567	511	391	409	704
ALBANY	557	534	401	334	522
ALBANY	338	379	256	280	373
ALBANY	550	507	289	297	459
ALBANY	413	495	326	357	525
ALBANY	330	313	227	211	322
ALBANY	415	280	243	209	319
ALBANY	208	177	146	120	189
ALBANY	294	301	203	132	255
ALBANY	410	449	328	284	371
ALBANY	1133	508	697	634	962
ALBANY	565	574	391	446	664
ALBANY	592	528	627	458	876
ALBANY	1274	1170	993	852	1083
ALBANY	551	463	308	388	552

TABLE A-19

## AIR FORCE WHITE HSGs

NED	EY_1976I	EY_1977	EY_1978	EY_1979	EY_1980
ALBANY	1868	1895	1456	1396	1745
BOSTON	2576	2740	2246	2233	2796
BUFFALO	1636	1813	1420	1432	1935
NEW YORK	1412	1542	1191	1085	1531
HARRISBURG	1304	1426	1128	1069	1369
PHILADELPHIA	945	1076	819	689	1013
NEWARK	1077	1020	796	826	1174
ATLANTA	630	691	551	624	959
COLUMBIA	484	527	456	468	730
JACKSONVILLE	1034	1100	981	1016	1399
MEMPHIS	697	658	512	474	707
MIAMI	1446	1453	1229	1222	1911
MONTGOMERY	801	899	757	870	1272
NASHVILLE	936	1605	862	910	1489
RALEIGH	921	1117	914	887	1257
CLEVELAND	1531	1376	987	846	1412
COLUMBUS	1802	1565	1108	1206	1865
DETROIT	2133	1871	1342	1324	2265
INDIANAPOLIS	954	936	608	602	1215
LOUISVILLE	932	851	665	625	1176
PITTSBURGH	1143	1222	1020	923	1445
RICHMOND	590	508	435	440	590
WASHINGTON DC	833	995	863	863	1105
CHICAGO	965	867	583	617	1204
ST LOUIS	1216	1340	986	802	1306
KANSAS CITY	869	955	788	614	1012
MINNEAPOLIS	1043	1267	1109	850	1110
OMAHA	833	958	895	713	1027
PEORIA	1006	1022	833	839	1468
MILWAUKEE	1012	1011	793	697	1143
ALBUQUERQUE	759	925	765	814	1090
DALLAS	1020	1128	719	730	1227
DENVER	719	902	652	768	1105
HOUSTON	614	656	522	483	758
LITTLE ROCK	837	795	629	559	903
NEW ORLEANS	329	354	341	269	459
OKLAHOMA CITY	515	654	444	371	636
SAN ANTONIO	848	1011	769	757	1112
LOS ANGELES	2104	1950	1603	1549	2292
PORTLAND	1022	1052	787	965	1504
SAN DIEGO	1795	1837	1389	1163	1911
SAN FRANCISCO	2467	2419	2095	2029	2744
SEATTLE	952	973	681	791	1261

TABLE A-20

## AIR FORCE WHITE 1-3A HSGs

NRD	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1539	1451	1037	982	1140
BOSTON	2007	1572	1556	1465	1764
BUFFALO	1365	1366	993	1006	1283
NEW YORK	1095	1072	810	704	980
HARRISBURG	1027	868	781	719	884
PHILADELPHIA	762	754	583	483	657
NEWARK	869	615	569	544	734
ATLANTA	495	409	311	391	544
COLUMBIA	347	303	262	288	417
JACKSONVILLE	826	814	697	668	843
MEMPHIS	494	445	309	265	399
MIAMI	1173	1078	856	837	1206
MONTGOMERY	578	585	487	536	725
NASHVILLE	690	621	547	551	843
RALEIGH	700	600	546	585	726
CLEVELAND	1252	611	740	612	1017
COLUMBUS	1407	1100	745	809	1179
DETROIT	1655	1327	1004	962	1565
INDIANAPOLIS	739	715	472	431	814
LOUISVILLE	676	522	430	395	693
PITTSBURGH	898	754	689	580	850
RICHMOND	451	364	588	294	398
WASHINGTON DC	688	735	635	626	757
CHICAGO	806	494	407	447	830
ST LOUIS	964	996	703	570	831
KANSAS CITY	679	689	552	424	670
MINNEAPOLIS	825	987	820	622	784
OMAHA	662	607	621	492	696
PEORIA	810	709	599	599	1015
MILWAUKEE	803	767	593	500	781
ALBUQUERQUE	549	598	464	461	615
DALLAS	791	777	470	475	763
DENVER	578	702	470	533	759
HOUSTON	459	453	352	322	495
LITTLE ROCK	599	418	400	335	515
NEW ORLEANS	260	229	207	175	273
OKLAHOMA CITY	415	430	308	225	408
SAN ANTONIO	632	698	517	482	637
LOS ANGELES	1631	1298	1046	1016	1449
PORTLAND	819	796	564	691	1008
SAN DIEGO	1411	1340	944	787	1313
SAN FRANCISCO	1912	1698	1498	1324	1719
SEATTLE	772	689	494	569	840



TABLE A-21

## AIR FORCE WHITE 1-2 HSGs

NEQ	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1084	987	669	647	733
BOSTON	1323	1041	1022	913	1115
BUFFALO	998	954	688	678	872
NEW YORK	739	671	510	430	587
HARRISBURG	678	558	491	441	561
PHILADELPHIA	514	525	377	313	436
NEWARK	584	395	364	344	480
ATLANTA	317	262	174	221	363
COLUMBIA	224	189	170	186	273
JACKSONVILLE	545	519	451	418	512
MEMPHIS	302	265	192	146	227
MIAMI	805	719	590	538	809
MONTGOMERY	376	368	292	324	447
NASHVILLE	432	379	337	359	523
RALEIGH	435	366	345	359	447
CLEVELAND	851	409	525	410	695
COLUMBUS	940	734	502	496	777
DETROIT	1107	909	720	619	1022
INDIANAPOLIS	476	475	313	308	523
LOUISVILLE	420	344	265	228	419
PITTSBURGH	605	479	450	339	544
RICHMOND	321	233	198	202	274
WASHINGTON DC	458	511	409	419	541
CHICAGO	547	345	282	295	595
ST LOUIS	636	677	456	378	551
KANSAS CITY	461	457	360	284	432
MINNEAPOLIS	545	694	551	395	555
OMAHA	443	400	403	334	465
PEORIA	558	503	387	398	694
MILWAUKEE	551	524	397	322	512
ALBUQUERQUE	330	374	251	278	366
DALLAS	524	483	273	281	444
DENVER	404	489	316	351	515
HOUSTON	298	291	207	186	301
LITTLE ROCK	380	257	220	186	298
NEW ORLEANS	161	154	132	104	172
OKLAHOMA CITY	273	288	196	127	247
SAN ANTONIO	399	436	315	269	359
LOS ANGELES	1069	851	659	590	912
PORTLAND	562	570	387	446	663
SAN DIEGO	977	907	610	487	852
SAN FRANCISCO	1237	1123	958	813	1046
SEATTLE	547	475	301	382	549

TABLE A-22

## MARINE CORPS HSGs

ARE	FY-1976	FY-1977	FY-1978	FY-1979	FY-1980
ALEANY	665	653	621	685	929
BOSTON	1205	1291	1057	1025	1169
BUFFALO	807	884	820	820	721
NEW YORK	1410	1760	1401	1051	1521
HARRISBURG	532	654	739	583	685
PHILADELPHIA	832	692	985	840	954
NEWARK	656	572	752	630	776
ATLANTA	356	379	300	303	541
COLLEGE	332	300	383	374	578
JACKSONVILLE	515	547	558	531	718
MEMPHIS	340	487	404	441	519
MIAMI	484	570	469	520	721
MONTGOMERY	395	452	378	371	638
NASHVILLE	325	392	327	350	434
RALEIGH	521	478	503	574	826
CLEVELAND	687	881	1033	635	898
COLUMBUS	685	991	1094	731	859
DETROIT	1401	1315	1154	1196	1723
INDIANAPOLIS	774	700	546	542	739
LOUISVILLE	530	595	569	487	542
PITTSBURGH	520	544	560	403	542
RICHMOND	431	570	554	536	578
WASHINGTON DC	761	539	1176	1035	1228
CHICAGO	1368	1105	1072	1016	1391
ST LOUIS	682	828	627	620	769
KANSAS CITY	744	573	440	456	511
MINNEAPOLIS	714	636	520	428	775
OMAHA	723	620	509	409	564
PEORIA	726	829	576	584	831
MILWAUKEE	1060	810	442	351	589
ALBUQUERQUE	474	449	486	423	579
CALLAS	445	442	306	428	428
DENVER	555	549	494	366	431
HOLSTON	325	358	360	394	481
LITTLE ROCK	421	365	341	389	456
NEW ORLEANS	236	327	206	281	394
OKLAHOMA CITY	245	195	150	218	236
SAN ANTONIO	482	456	514	455	509
LOS ANGELES	1214	1095	968	912	1141
PORTLAND	517	429	372	354	480
SAN DIEGO	755	795	623	594	849
SAN FRANCISCO	1206	1230	916	850	1082
SEATTLE	467	417	378	328	517

TABLE A-23

## MARINE CORPS 1-3A HSGs

REF	FY-1976I	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	565	467	434	329	497
BOSTON	615	722	483	546	634
BUFFALO	565	541	451	338	415
NEW YORK	765	767	589	397	592
HARRISBURG	254	369	425	307	369
PHILADELPHIA	475	425	370	321	420
NEWARK	518	511	341	281	342
ATLANTA	175	128	82	103	151
COLUMBIA	122	82	103	101	119
JACKSONVILLE	275	233	184	166	269
MEMPHIS	146	141	100	94	102
MIAMI	274	272	206	229	302
MONTGOMERY	162	139	138	107	150
NASHVILLE	176	185	149	146	194
RALEIGH	245	159	149	167	251
CLEVELAND	395	416	515	302	469
COLUMBUS	416	498	542	339	427
DETROIT	211	628	555	550	823
INDIANAPOLIS	465	363	279	284	402
LOUISVILLE	291	266	259	207	251
PITTSBURGH	340	275	260	157	265
RICHMOND	235	250	192	171	243
WASHINGTON DC	437	405	446	314	422
CHICAGO	786	462	451	417	591
ST LOUIS	530	392	291	296	315
KANSAS CITY	470	317	225	224	258
PINNEAPOLIS	481	421	308	245	477
OMAHA	516	377	298	225	341
PEORIA	478	505	330	313	500
MILWAUKEE	718	451	270	186	340
ALBUQUERQUE	270	165	173	130	215
DALLAS	275	234	133	175	231
DENVER	411	308	266	215	267
HOUSTON	192	157	160	159	216
LITTLE ROCK	208	121	91	126	155
NEW ORLEANS	119	64	72	78	111
OKLAHOMA CITY	163	110	58	108	121
SAN ANTONIO	270	210	201	179	190
LOS ANGELES	667	468	406	376	496
PORTLAND	377	311	256	211	297
SAN DIEGO	491	408	281	260	426
SAN FRANCISCO	657	516	364	359	515
SEATTLE	317	266	237	193	331

TABLE A-24

## MARINE CORPS 1-2 HSGs

NEC	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALEANY	369	292	282	207	323
BOSTON	524	446	366	334	389
BUFFALO	366	379	289	217	288
NEW YORK	467	407	328	216	335
PARISEURG	207	241	255	195	212
PHILADELPHIA	264	274	222	179	249
NEWARK	315	286	176	160	209
ATLANTA	104	76	46	58	87
COLUMBIA	69	47	59	56	65
JACKSONVILLE	156	131	117	91	158
MEMPHIS	68	80	56	55	67
MIAMI	170	161	137	137	182
MONTICMERY	102	74	62	56	78
NASHVILLE	101	59	83	87	125
RALEIGH	141	85	75	97	150
CLEVELAND	265	255	293	159	292
COLUMBUS	262	301	305	223	270
DETROIT	225	272	326	329	508
INDIANAPOLIS	293	207	174	162	265
LOUISVILLE	175	136	142	113	150
PITTSBURGH	205	149	146	80	156
RICHMOND	145	172	96	94	140
WASHINGTON DC	263	253	256	166	267
CHICAGO	470	287	240	228	355
ST LOUIS	317	266	173	182	192
KANSAS CITY	311	212	146	131	177
MINNEAPOLIS	310	274	196	149	336
OMAHA	346	246	200	139	227
PEORIA	323	249	180	196	296
MILWAUKEE	500	282	170	112	205
ALBUQUERQUE	165	56	101	74	115
CALLAS	177	145	94	101	140
DENVER	262	195	168	140	188
HOLSTON	127	106	94	99	143
LITTLE ROCK	111	76	55	66	86
NEW ORLEANS	66	53	42	35	70
OKLAHOMA CITY	140	67	38	66	79
SAN ANTONIO	140	113	111	91	100
LOS ANGELES	422	292	248	226	295
PORTLAND	263	225	175	133	224
SAN DIEGO	307	252	177	163	250
SAN FRANCISCO	412	316	218	220	313
SEATTLE	223	189	153	135	234

TABLE A-25

## MARINE CORPS WHITE HSGs

ABD	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	772	713	675	550	815
BOSTON	1145	1185	973	979	1125
BUFFALO	741	800	726	560	634
NEW YORK	835	905	808	588	900
HARRISBURG	512	628	682	529	652
PHILADELPHIA	536	497	510	415	575
NEWARK	681	732	515	418	550
ATLANTA	244	251	162	147	254
COLUMBIA	154	115	138	129	194
JACKSONVILLE	394	403	395	355	516
MEMPHIS	197	188	159	107	166
MIAMI	376	428	357	392	545
MONTGOMERY	242	237	209	168	305
NASHVILLE	251	291	247	256	363
RALEIGH	325	257	244	281	420
CLEVELAND	524	634	638	403	721
COLUMBUS	603	826	897	594	741
DETROIT	1150	1078	864	959	1327
INDIANAPOLIS	682	596	469	450	643
LOUISVILLE	476	505	439	386	486
PITTSBURGH	476	479	472	317	476
RICHMOND	274	320	210	172	292
WASHINGTON DC	492	483	487	346	539
CHICAGO	823	578	499	485	835
ST LOUIS	663	585	442	431	531
KANSAS CITY	690	498	392	372	412
MINNEAPOLIS	703	624	508	411	756
OMAHA	684	584	434	384	545
PEORIA	661	773	530	536	770
MILWAUKEE	976	724	397	298	537
ALBUQUERQUE	451	435	471	410	562
DALLAS	373	348	218	300	331
DENVER	566	519	449	343	415
HOUSTON	241	237	214	233	338
LITTLE ROCK	238	177	169	192	281
NEW ORLEANS	114	143	91	105	212
OKLAHOMA CITY	205	167	119	176	210
SAN ANTONIO	456	435	478	426	485
LOS ANGELES	1029	892	785	718	919
PORTLAND	512	428	367	349	474
SAN DIEGO	742	748	580	555	784
SAN FRANCISCO	1091	1111	830	756	972
SEATTLE	458	414	369	318	505

TABLE A-26

## MARINE CORPS WHITE 1-3A HSGs

NEO	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	532	435	396	299	480
BOSTON	790	699	461	535	624
BUFFALO	538	522	430	319	389
NEW YORK	542	467	407	272	445
HARRISBURG	343	364	406	300	361
PHILADELPHIA	359	305	266	219	333
NEWARK	459	454	299	233	300
ATLANTA	149	114	68	80	126
COLUMBIA	90	60	69	74	104
JACKSONVILLE	245	211	168	148	246
MEMPHIS	119	106	77	57	79
MIAMI	254	251	189	208	289
MONTGOMERY	133	117	111	85	129
NASHVILLE	150	172	134	130	186
RALEIGH	188	129	108	139	210
CLEVELAND	350	373	411	228	437
COLUMBUS	391	469	489	318	402
DETROIT	738	575	492	483	746
INDIANAPOLIS	438	345	259	264	377
LOUISVILLE	273	245	226	197	245
PITTSBURGH	319	261	241	144	237
RICHMOND	186	206	123	109	195
WASHINGTON DC	340	303	291	197	319
CHICAGO	574	359	277	281	470
ST LOUIS	463	351	246	251	286
KANSAS CITY	453	299	220	211	244
MINNEAPOLIS	480	417	307	246	473
OMAHA	493	365	293	218	335
PEORIA	454	494	319	307	484
MILWAUKEE	720	434	261	176	333
ALBUQUERQUE	262	181	170	125	212
DALLAS	255	215	121	157	214
DENVER	404	298	256	213	263
HOUSTON	170	143	128	131	194
LITTLE ROCK	151	103	77	103	146
NEW ORLEANS	79	69	61	46	101
OKLAHOMA CITY	157	102	56	101	118
SAN ANTONIO	263	206	194	175	184
LOS ANGELES	612	416	366	337	461
PORTLAND	376	310	254	209	297
SAN DIEGO	473	391	273	253	409
SAN FRANCISCO	627	491	348	340	484
SEATTLE	311	265	236	190	327

TABLE A-27

## MARINE CORPS WHITE 1-2 HSGs

ARE	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	351	281	265	194	316
BOSTON	515	439	358	329	389
BUFFALO	348	371	278	206	278
NEW YORK	358	274	244	146	267
HARRISBURG	202	240	248	193	213
PHILADELPHIA	234	220	174	143	215
NEWARK	296	267	163	141	192
ATLANTA	93	72	40	52	78
COLUMBIA	61	39	42	47	63
JACKSONVILLE	150	125	107	85	147
MEMPHIS	57	71	48	38	61
MIAMI	162	156	126	130	175
MONTGOMERY	82	70	55	52	71
NASHVILLE	91	95	77	73	123
RALEIGH	114	71	60	87	141
CLEVELAND	248	233	265	137	285
COLUMBUS	252	287	283	212	259
DETROIT	484	350	304	299	477
INDIANAPOLIS	281	199	167	160	255
LOUISVILLE	169	128	130	109	147
PITTSBURGH	197	146	140	76	151
RICHMOND	127	154	74	75	128
WASHINGTON DC	216	217	145	127	231
CHICAGO	373	239	181	174	307
ST LOUIS	290	240	151	166	178
KANSAS CITY	300	204	144	126	170
MINNEAPOLIS	310	271	196	149	333
OMAHA	337	243	197	137	224
PEORIA	312	343	176	193	286
MILWAUKEE	491	276	167	107	205
ALBUQUERQUE	162	94	100	73	114
DALLAS	166	138	91	93	135
DENVER	260	190	162	140	187
HOUSTON	118	101	79	89	137
LITTLE ROCK	88	69	48	59	83
NEW ORLEANS	51	48	38	29	68
OKLAHOMA CITY	124	67	37	62	79
SAN ANTONIO	139	112	107	89	98
LOS ANGELES	395	269	231	209	278
PORTLAND	263	224	174	132	223
SAN DIEGO	301	243	172	161	240
SAN FRANCISCO	400	306	214	214	301
SEATTLE	220	189	153	135	232

TABLE A-28

DoD HSGs

ARO	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	7285	7138	5566	5094	6136
BOSTON	10151	10127	8284	8003	9108
BUFFALO	7104	6969	5657	5268	6297
NEW YORK	9627	10142	7670	6763	8427
HARRISBURG	5143	5178	4563	4104	4975
PHILADELPHIA	6185	6580	5465	5268	6092
NEWARK	6158	5722	4477	4437	5335
ATLANTA	4833	5038	4502	4706	5365
COLUMBIA	4187	4438	4222	4509	5230
JACKSONVILLE	7968	8240	8064	7919	8803
MEMPHIS	4667	4892	4315	4154	4921
MIAMI	6537	7065	6113	5760	6670
MONTGOMERY	5528	5789	5192	5041	5731
NASHVILLE	4579	4611	3645	3847	5008
RALEIGH	7245	7281	6512	6220	7198
CLEVELAND	6599	6075	5041	4263	6087
COLUMBUS	7731	7526	6082	5223	7453
DETROIT	10979	9814	7301	6019	10497
INDIANAPOLIS	4528	4198	2984	3123	4570
LOUISVILLE	4420	4438	3728	3612	4703
PITTSBURGH	5382	4729	4154	3781	4913
RICHMOND	4495	4223	4025	3898	4128
WASHINGTON DC	6461	7223	6729	6599	7575
CHICAGO	7248	6281	4900	4671	6721
ST LOUIS	5314	5407	4499	4190	5640
KANSAS CITY	4286	4109	3042	3073	3964
MINNEAPOLIS	4895	5105	3641	3240	4181
OMAHA	4189	4063	3353	2839	3588
PEORIA	4641	4604	3587	3519	5289
MILWAUKEE	4880	4411	2954	2540	3660
ALBUQUERQUE	4027	3995	3312	3347	3980
DALLAS	4464	4622	3254	3273	4236
DENVER	3859	3603	2876	2614	3617
HOUSTON	3547	3607	3158	3029	3627
LITTLE ROCK	4017	3840	3473	3177	3979
NEW ORLEANS	2349	2534	2186	2445	2619
OKLAHOMA CITY	2625	2430	1886	1787	2136
SAN ANTONIO	3824	3896	3209	3313	3863
LOS ANGELES	11264	10225	7753	6655	9027
PORTLAND	4920	4421	3195	3567	4778
SAN DIEGO	7466	7559	5853	4887	6767
SAN FRANCISCO	12790	12648	9491	8382	10357
SEATTLE	4389	4052	3016	3017	4116



TABLE A-29

DoD 1-3A HSGs

ARQ	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	5077	4499	3298	2903	3507
BOSTON	6959	5935	4745	4548	5234
BUFFALO	5132	4555	3456	3083	3791
NEW YORK	5306	4770	3491	2940	3785
HARRISBURG	3425	2959	2741	2136	2829
PHILADELPHIA	3571	3266	2530	2241	2869
NEWARK	3696	3074	2369	2075	2553
ATLANTA	2326	1975	1509	1558	1981
COLUMBIA	1857	1361	1214	1222	1627
JACKSONVILLE	3631	3103	2591	2297	2879
MEMPHIS	1787	1488	1247	1076	1498
MIAMI	3979	3614	2929	2749	3411
MONTGOMERY	2738	2267	1847	1677	2131
NASHVILLE	2554	2176	1737	1754	2450
RALEIGH	3466	2627	2167	2101	2570
CLEVELAND	4256	2948	2737	2277	3320
COLUMBUS	4833	4180	3206	2694	3885
DETROIT	6600	5163	4026	3149	5619
INDIANAPOLIS	2904	2539	1767	1681	2613
LOUISVILLE	2393	2021	1761	1661	2324
PITTSBURGH	3463	2500	2206	1859	2527
RICHMOND	2297	1744	1840	1444	1749
WASHINGTON DC	3616	3415	3090	2921	3488
CHICAGO	4266	2876	2414	2126	3327
ST LOUIS	3448	3051	2391	2167	2583
KANSAS CITY	2689	2401	1770	1704	2254
MINNEAPOLIS	3409	3422	2364	2026	2609
OMAHA	2926	2491	2072	1627	2217
PEORIA	3242	2843	2190	2065	3217
MILWAUKEE	3458	2823	1896	1533	2244
ALBUQUERQUE	2136	1851	1485	1459	1886
DALLAS	2545	2455	1642	1593	2190
DENVER	2640	2308	1770	1654	2322
HOUSTON	1852	1725	1492	1349	1788
LITTLE ROCK	1866	1386	1286	1165	1608
NEW ORLEANS	1061	848	731	778	954
OKLAHOMA CITY	1724	1344	974	895	1163
SAN ANTONIO	2076	1866	1447	1480	1748
LOS ANGELES	6594	5097	3880	3351	4600
PORTLAND	3493	3034	2106	2327	3153
SAN DIEGO	4904	4369	3362	2696	4014
SAN FRANCISCO	7566	6393	4878	4148	5327
SEATTLE	3130	2540	1968	1911	2605

TABLE A-30

DoD 1-2 HSGs

NRD	EX_1976I	EY_1977	EY_1978	EY_1979	EY_1980
ALBANY	3481	3052	2173	1891	2311
BOSTON	4653	3887	3194	2916	3416
BUFFALO	3617	3167	2400	2057	2581
NEW YORK	3309	2806	2069	1682	2243
HARRISBURG	2278	1961	1754	1494	1826
PHILADELPHIA	2289	2107	1569	1338	1793
NEWARK	2360	1895	1394	1268	1615
ATLANTA	1390	1181	868	873	1231
COLUMBIA	1100	768	686	717	967
JACKSONVILLE	2214	1931	1553	1400	1728
MEMPHIS	988	849	675	570	856
MIAMI	2655	2389	1932	1769	2266
MONTGOMERY	1539	1308	1004	945	1326
NASHVILLE	1524	1292	1045	1080	1561
RALEIGH	1936	1473	1232	1204	1534
CLEVELAND	2877	1894	1752	1419	2166
COLUMBUS	3148	2699	2042	1749	2547
DETROIT	4358	3313	2595	2251	3681
INDIANAPOLIS	1866	1667	1151	1082	1712
LOUISVILLE	1482	1227	1101	949	1403
PITTSBURGH	2275	1573	1376	1092	1615
RICHMOND	1387	1070	948	863	1139
WASHINGTON DC	2409	2245	1933	1810	2324
CHICAGO	2742	1831	1444	1304	2180
ST LOUIS	2281	2026	1524	1377	1768
KANSAS CITY	1826	1601	1161	1101	1515
MINNEAPOLIS	2332	2374	1611	1362	1821
OMAHA	1998	1706	1371	1051	1480
PEORIA	2247	1994	1410	1346	2112
MILWAUKEE	2377	1926	1261	1013	1514
ALBUQUERQUE	1318	1169	903	901	1173
DALLAS	1663	1580	1029	1018	1364
DENVER	1820	1637	1199	1100	1572
HOUSTON	1214	1121	927	840	1130
LITTLE ROCK	1135	850	753	662	961
NEW ORLEANS	604	516	445	431	569
OKLAHOMA CITY	1215	890	636	539	723
SAN ANTONIO	1259	1157	902	868	1062
LOS ANGELES	4261	3324	2473	2077	2934
PORTLAND	2456	2149	1466	1555	2239
SAN DIEGO	3364	2917	2205	1752	2622
SAN FRANCISCO	4978	4213	3138	2616	3434
SEATTLE	2210	1769	1303	1311	1842

TABLE A-31

## DoD WHITE HSGs

NRD	EY_1976I	EY_1977I	EY_1978I	EY_1979I	EY_1980I
ALBANY	6655	6468	4999	4501	5491
BOSTON	9820	9707	7914	7655	8771
BUFFALO	6649	6484	5165	4808	5772
NEW YORK	6145	6276	4668	3924	5100
HARRISBURG	4950	4972	4351	3914	4763
PHILADELPHIA	3999	4017	3090	2856	3731
NEWARK	4789	4440	3274	3078	3933
ATLANTA	2749	2791	2148	2012	2906
COLUMBIA	1794	1617	1427	1580	2171
JACKSONVILLE	6228	6207	6034	5711	6710
MEMPHIS	2046	1852	1530	1440	1942
MIAMI	5103	5147	4173	3970	5061
MONTGOMERY	2995	3080	2376	2346	3185
NASHVILLE	3632	3634	2785	2952	4186
RALEIGH	3798	3697	3008	2860	3879
CLEVELAND	5363	4796	3756	3149	4867
COLUMBUS	6804	6439	5118	4190	6378
DETROIT	9293	8277	5942	4726	8752
INDIANAPOLIS	4022	3690	2566	2641	4070
LOUISVILLE	3857	3758	3116	2942	4097
PITTSBURGH	4852	4199	3700	3225	4361
RICHMOND	2247	2087	1729	1595	2147
WASHINGTON DC	4109	4283	3634	3368	4351
CHICAGO	4815	3884	2805	2636	4401
ST LOUIS	4416	4370	3613	3298	4596
KANSAS CITY	3919	3589	2808	2589	3416
MINNEAPOLIS	4851	5044	3604	3166	4125
OMAHA	4026	3926	3233	2730	3473
PEORIA	4399	4380	3386	3318	5015
MILWAUKEE	4623	4112	2767	2312	3423
ALBUQUERQUE	3781	3774	3152	3187	3836
DALLAS	3355	3479	2383	2425	3287
DENVER	3632	3421	2687	2452	3462
HOUSTON	2414	2430	2030	1925	2585
LITTLE ROCK	2390	2311	1914	1765	2531
NEW ORLEANS	1166	1226	1069	1113	1413
OKLAHOMA CITY	2250	2077	1556	1493	1879
SAN ANTONIO	3507	3546	2889	2941	3552
LOS ANGELES	9796	8636	6468	5405	7413
PORTLAND	4869	4387	3152	3532	4731
SAN DIEGO	7048	7105	5505	4531	6324
SAN FRANCISCO	11750	11448	8540	7492	9427
SEATTLE	4321	3973	2960	2935	4038

TABLE A-32

DoD WHITE 1-3A HSGs

ABQ	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	4860	4314	3149	2763	3369
BOSTON	6838	5821	4642	4466	5135
BUFFALO	4968	4426	3333	2982	3659
NEW YORK	3938	3515	2566	2117	2838
HARRISBURG	3372	2904	2684	2301	2782
PHILADELPHIA	2810	2561	1908	1695	2321
NEWARK	3262	2718	2059	1787	2260
ATLANTA	1848	1632	1210	1204	1701
COLUMBIA	1234	948	791	924	1323
JACKSONVILLE	3248	2824	2330	2059	2623
MEMPHIS	1329	1114	869	769	1147
MIAMI	3677	3344	2684	2530	3205
MONTGOMERY	1979	1836	1400	1319	1837
NASHVILLE	2298	1996	1582	1595	2325
RALEIGH	2503	2022	1614	1647	2154
CLEVELAND	3812	2635	2411	1939	3031
COLUMBUS	4523	3908	2951	2466	3620
DETROIT	6081	4797	3688	2810	5221
INDIANAPOLIS	2741	2414	1648	1580	2502
LOUISVILLE	2241	1896	1652	1524	2211
PITTSBURGH	3253	2364	2097	1741	2397
RICHMOND	1589	1347	1390	999	1419
WASHINGTON DC	2925	2724	2309	2165	2841
CHICAGO	3397	2274	1751	1639	2744
ST LOUIS	3122	2784	2166	1956	2396
KANSAS CITY	2585	2273	1715	1591	2130
MINNEAPOLIS	3350	3404	2355	2010	2597
OMAHA	2868	2463	2043	1602	2191
PEORIA	3163	2787	2144	2014	3150
MILWAUKEE	3384	2753	1846	1479	2202
ALBUQUERQUE	2079	1812	1447	1426	1843
DALLAS	2258	2187	1447	1464	2043
DENVER	2573	2256	1708	1599	2260
HOUSTON	1617	1536	1255	1159	1618
LITTLE ROCK	1540	1228	1101	992	1458
NEW ORLEANS	783	705	601	621	805
OKLAHOMA CITY	1592	1280	924	826	1109
SAN ANTONIO	1989	1790	1385	1397	1682
LOS ANGELES	6164	4727	3574	3051	4242
PORTLAND	3475	3019	2087	2319	3140
SAN DIEGO	4767	4240	3261	2598	3879
SAN FRANCISCO	7278	6116	4644	3928	5096
SEATTLE	3101	2517	1948	1890	2576

TABLE A-33

DoD WHITE 1-2 HSGs

NRD	EY_1976I	EY_1977	EY_1978	EY_1979	EY_1980
ALBANY	3389	2980	2104	1836	2251
BOSTON	4599	3033	3144	2882	3374
BUFFALO	3531	3109	2344	2015	2527
NEW YORK	2663	2212	1645	1310	1809
HARRISBURG	2255	1937	1726	1478	1805
PHILADELPHIA	1946	1783	1297	1117	1568
NEWARK	2180	1756	1287	1154	1503
ATLANTA	1203	1053	773	750	1121
COLUMBIA	841	622	511	618	867
JACKSONVILLE	2068	1817	1447	1311	1642
MEMPHIS	846	716	556	463	729
MIAMI	2534	2284	1845	1690	2188
MONTGOMERY	1246	1152	876	838	1206
NASHVILLE	1426	1232	978	1005	1509
RALEIGH	1569	1261	1032	1035	1375
CLEVELAND	2657	1757	1630	1275	2041
COLUMBUS	3006	2582	1932	1654	2431
DETROIT	4110	3140	2440	2109	3499
INDIANAPOLIS	1800	1609	1102	1041	1660
LOUISVILLE	1423	1181	1053	898	1350
PITTSBURGH	2177	1508	1329	1043	1567
RICHMOND	1092	921	752	700	997
WASHINGTON DC	2078	1951	1596	1499	2048
CHICAGO	2326	1550	1180	1091	1915
ST LOUIS	2112	1886	1418	1289	1702
KANSAS CITY	1775	1543	1140	1052	1459
MINNEAPOLIS	2323	2364	1606	1357	1815
OMAHA	1970	1694	1358	1041	1469
PEORIA	2210	1960	1387	1321	2081
MILWAUKEE	2346	1897	1247	985	1497
ALBUQUERQUE	1293	1149	887	887	1153
DALLAS	1546	1478	959	965	1318
DENVER	1796	1616	1172	1083	1554
HOUSTON	1112	1051	832	759	1070
LITTLE ROCK	1013	782	680	597	908
NEW ORLEANS	487	464	395	376	515
OKLAHOMA CITY	1143	864	617	510	701
SAN ANTONIO	1228	1130	870	834	1040
LOS ANGELES	4060	3158	2345	1954	2780
PORTLAND	2444	2139	1457	1552	2231
SAN DIEGO	3300	2847	2155	1715	2558
SAN FRANCISCO	4856	4095	3028	2520	3323
SEATTLE	2190	1757	1290	1301	1827

TABLE A-34

## RELATIVE MILITARY PAY

NRD	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1.243	1.212	1.110	1.078	1.078
BOSTON	1.175	1.146	1.049	1.019	1.019
BUFFALO	1.424	1.308	1.271	1.235	1.235
NEW YORK	1.246	1.215	1.113	1.081	1.081
HARRISBURG	1.304	1.349	1.236	1.200	1.200
PHILADELPHIA	1.281	1.249	1.144	1.111	1.111
NEWARK	1.228	1.198	1.097	1.065	1.065
ATLANTA	1.362	1.328	1.216	1.181	1.181
COLUMBIA	1.348	1.314	1.204	1.169	1.169
JACKSONVILLE	1.544	1.506	1.379	1.340	1.340
MEMPHIS	1.402	1.367	1.252	1.216	1.216
MIAMI	1.390	1.355	1.241	1.206	1.206
MONTGOMERY	1.302	1.270	1.163	1.129	1.129
NASHVILLE	1.340	1.307	1.197	1.163	1.163
RALEIGH	1.420	1.384	1.268	1.231	1.231
CLEVELAND	1.123	1.095	1.003	0.974	0.974
COLUMBUS	1.193	1.163	1.066	1.035	1.035
DETROIT	1.083	1.056	0.967	0.939	0.939
INDIANAPOLIS	1.131	1.103	1.010	0.981	0.981
LOUISVILLE	1.214	1.184	1.084	1.053	1.053
PITTSBURGH	1.292	1.260	1.154	1.121	1.121
RICHMOND	1.391	1.356	1.242	1.206	1.206
WASHINGTON	1.261	1.230	1.126	1.094	1.094
CHICAGO	1.049	1.023	0.937	0.910	0.910
ST LOUIS	1.154	1.125	1.031	1.001	1.001
KANSAS CITY	1.317	1.284	1.176	1.142	1.142
MINNEAPOLIS	1.223	1.193	1.092	1.061	1.061
OMAHA	1.214	1.184	1.084	1.053	1.053
PEORIA	1.058	1.032	0.945	0.918	0.918
MILWAUKEE	1.100	1.073	0.982	0.954	0.954
ALBUQUERQUE	1.246	1.215	1.113	1.081	1.081
DALLAS	1.070	1.043	0.956	0.928	0.928
DENVER	1.049	1.023	0.937	0.910	0.910
HOUSTON	1.104	1.076	0.985	0.957	0.957
LITTLE ROCK	1.211	1.181	1.081	1.050	1.050
NEW ORLEANS	1.157	1.128	1.033	1.003	1.003
OKLAHOMA CITY	1.311	1.278	1.171	1.137	1.137
SAN ANTONIO	1.153	1.124	1.030	1.000	1.000
LOS ANGELES	1.157	1.128	1.033	1.004	1.004
PORTLAND	1.142	1.114	1.020	0.991	0.991
SAN DIEGO	1.258	1.227	1.124	1.091	1.091
SAN FRANCISCO	1.138	1.109	1.016	0.987	0.987
SEATTLE	1.132	1.104	1.011	0.982	0.982

TABLE A-35

## OVERALL CIVILIAN UNEMPLOYMENT RATE

NEO	EY-19191	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	7.50	7.50	6.10	5.50	6.00
ECSTON	8.70	6.80	6.40	5.20	5.00
BUFFALO	11.20	9.00	8.10	7.00	9.40
NEW YORK	10.40	5.80	8.30	8.30	7.90
PARISBURG	6.10	5.10	5.30	4.80	5.70
PHILADELPHIA	8.70	8.40	7.20	7.00	7.00
NEWARK	5.70	6.40	7.10	6.60	7.00
ATLANTA	7.50	6.50	5.70	5.20	5.30
COLUMBIA	5.80	4.80	4.20	4.10	4.30
ACKSONVILLE	7.30	6.10	5.80	5.90	5.50
MEPPIS	7.70	5.90	5.40	5.50	5.90
MIAMI	11.20	8.00	6.90	6.20	5.70
MONTGOMERY	5.50	5.00	4.90	5.80	6.60
NASHVILLE	6.70	4.40	4.10	4.40	5.30
RALEIGH	4.70	3.50	3.00	3.10	4.20
CLEVELAND	6.80	5.50	5.00	4.80	6.80
COLUMBUS	7.00	5.90	4.90	4.80	5.40
DETROIT	11.10	7.90	7.00	7.30	11.80
INDIANAPOLIS	5.00	5.50	5.20	5.20	7.20
LOUISVILLE	8.20	5.40	4.90	4.90	7.00
PITTSBURGH	7.50	7.60	6.30	5.80	7.10
RICHMOND	4.00	4.20	3.70	3.40	3.50
WASHINGTON DC	7.50	4.80	4.60	4.60	4.20
CHICAGO	7.70	5.60	5.30	5.10	7.10
ST LOUIS	7.20	6.40	5.60	5.10	7.60
KANSAS CITY	6.70	5.70	4.60	4.00	5.70
MINNEAPOLIS	6.40	5.30	3.60	3.00	4.40
OMAHA	8.20	4.70	3.80	4.10	5.10
PEORIA	5.00	5.10	4.90	4.80	7.60
MILWAUKEE	6.20	5.20	4.20	3.60	5.40
ALEXANDER	7.40	8.50	5.90	5.90	7.50
CALLAS	4.40	4.10	4.00	3.60	4.20
DENVER	7.00	6.10	5.30	4.60	4.70
HOLSTON	5.80	5.00	4.10	3.50	3.90
LITTLE ROCK	5.00	4.50	4.40	4.70	5.00
NEW ORLEANS	8.30	7.50	7.10	5.90	6.30
OKLAHOMA CITY	7.80	5.00	3.30	3.10	3.50
SAN ANTONIO	7.70	7.00	6.50	5.90	6.20
LOS ANGELES	5.70	7.80	7.00	5.80	5.80
PORTLAND	5.20	7.50	5.10	5.30	5.80
SAN DIEGO	11.50	10.20	7.50	6.00	6.60
SAN FRANCISCO	11.80	9.00	6.60	5.50	5.40
SEATTLE	5.10	7.50	5.50	5.20	6.00

TABLE A-36

## LOSS OF G.I. BILL

ABD	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	0	1	1	1	1
BOSTON	0	1	1	1	1
BUFFALO	0	1	1	1	1
NEW YORK	0	1	1	1	1
PATRICKSBURG	0	1	1	1	1
PHILADELPHIA	0	1	1	1	1
NEWARK	0	1	1	1	1
ATLANTA	0	1	1	1	1
COLLEGE	0	1	1	1	1
JACKSONVILLE	0	1	1	1	1
MEMPHIS	0	1	1	1	1
MIAMI	0	1	1	1	1
MONTGOMERY	0	1	1	1	1
NASHVILLE	0	1	1	1	1
RALEIGH	0	1	1	1	1
CLEVELAND	0	1	1	1	1
COLUMBUS	0	1	1	1	1
DETROIT	0	1	1	1	1
INDIANAPOLIS	0	1	1	1	1
LOUISVILLE	0	1	1	1	1
PITTSBURGH	0	1	1	1	1
RICHMOND	0	1	1	1	1
WASHINGTON DC	0	1	1	1	1
CHICAGO	0	1	1	1	1
ST LOUIS	0	1	1	1	1
KANSAS CITY	0	1	1	1	1
MINNEAPOLIS	0	1	1	1	1
OMAHA	0	1	1	1	1
PEORIA	0	1	1	1	1
MILWAUKEE	0	1	1	1	1
ALBUQUERQUE	0	1	1	1	1
DALLAS	0	1	1	1	1
DENVER	0	1	1	1	1
HOLSTON	0	1	1	1	1
LITTLE ROCK	0	1	1	1	1
NEW ORLEANS	0	1	1	1	1
OKLAHOMA CITY	0	1	1	1	1
SAN ANTONIO	0	1	1	1	1
LOS ANGELES	0	1	1	1	1
PORTLAND	0	1	1	1	1
SAN DIEGO	0	1	1	1	1
SAN FRANCISCO	0	1	1	1	1
SEATTLE	0	1	1	1	1



TABLE A-37

## ETA YOUTH

NE2	EY-1975I	EY-1977I	EY-1978I	EY-1979I	EY-1980I
ALBANY	53474.26	57611.67	74132.31	62708.57	62994.42
BOSTON	83466.99	89921.64	112287.20	98169.88	98617.38
BUFFALO	52943.22	57037.41	63398.70	56002.20	56257.48
NEW YORK	103557.39	111673.39	152939.19	123102.29	123663.45
HARRISBURG	28092.66	30265.11	38520.46	35424.09	35585.57
PHILADELPHIA	52342.53	56390.26	71917.35	68078.46	68398.80
NEWARK	55499.59	59791.47	78403.82	71103.73	71427.85
ATLANTA	34183.70	36827.18	48119.53	42329.77	42522.73
COLUMBIA	30967.20	33361.95	40492.64	36767.18	36934.78
JACKSONVILLE	27195.65	29299.81	36487.34	33193.60	33344.91
MEMPHIS	39672.22	42740.13	49079.72	44888.60	45093.22
MIAMI	53472.60	57607.73	74326.34	66749.43	67053.70
MONTGOMERY	34116.95	36755.27	44221.43	40939.54	41126.16
NASHVILLE	38580.55	41564.04	48374.83	43082.37	43278.76
NORFOLK	51403.55	55378.67	66892.21	58331.11	58597.01
CLEVELAND	47654.02	51339.18	63673.34	53077.83	53319.78
COLUMBUS	46741.55	50356.15	63098.75	53489.69	53733.52
DETROIT	91985.49	99098.88	117709.78	102404.26	102971.06
INDIANAPOLIS	28705.24	30925.06	32839.17	33087.74	33238.56
LOUISVILLE	32633.05	35156.62	47342.81	40665.79	40851.17
PITTSBURGH	58165.68	62663.73	76909.68	69308.25	69624.19
RICHMOND	29325.13	31592.89	39503.74	34177.76	34333.56
WASHINGTON DC	56899.38	61299.50	75274.94	62939.31	63226.22
CHICAGO	79378.26	85516.72	98698.41	84375.40	85262.30
ST LOUIS	42116.13	45373.04	54124.54	48955.10	49176.25
KANSAS CITY	32326.76	34926.65	38125.83	34941.11	35100.38
MINNEAPOLIS	34034.67	36666.62	46707.28	40603.77	40788.86
OMAHA	25786.49	27780.94	30881.04	27348.59	27473.66
PEORIA	29411.07	31605.48	38203.63	35356.27	35517.44
MILWAUKEE	28332.20	30523.18	38245.81	33302.76	33454.57
ALBUQUERQUE	25440.29	27407.62	32447.36	32727.98	32877.17
DALLAS	26373.78	28413.31	37822.13	29034.47	29166.82
DENVER	20481.14	22064.99	27601.25	25967.85	26086.23
HOUSTON	24959.37	26889.51	32851.35	30410.65	30549.27
LITTLE ROCK	27971.06	30134.10	35955.86	31945.61	32091.23
NEW ORLEANS	23683.01	25514.46	31283.17	29087.40	29219.99
OKLAHOMA CITY	22030.88	23734.56	27338.79	23624.05	23731.74
SAN ANTONIO	28956.57	31195.94	37444.38	33169.61	33320.81
LOS ANGELES	86998.01	93725.71	117203.61	105995.22	106478.39
PORTLAND	42437.05	45718.78	55886.77	47499.53	47716.05
SAN DIEGO	58434.48	62953.32	82006.06	74535.90	74875.67
SAN FRANCISCO	90973.36	98008.48	28019.31	111012.80	111518.84
SEATTLE	43173.97	46512.68	35109.43	50236.99	50465.99

TABLE A-38

## ETA COUNTERCYCLICAL

NRQ	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	91929.26	93270.76	180694.06	114750.24	63899.15
BOSTON	136961.94	136962.62	269213.19	192275.51	107069.42
BUFFALO	81944.43	81140.23	161068.11	113501.86	63203.98
NEW YORK	169462.61	171935.53	333091.84	275257.29	153278.16
HARRISBURG	50258.95	50992.37	98787.85	65137.46	36299.91
PHILADELPHIA	86099.68	87345.96	169215.91	141380.54	78728.34
NEWARK	100202.76	101664.99	196956.26	147164.86	81949.36
ATLANTA	50209.90	50942.68	98691.60	68230.35	37994.35
COLUMBIA	38947.90	39516.26	76555.10	57758.02	32162.79
JACKSONVILLE	37404.14	37949.96	73520.72	54392.05	30286.44
MEMPHIS	38255.30	38913.55	75193.75	69432.09	38663.55
MIAMI	87819.33	89099.84	172613.71	120639.32	67178.51
MONTGOMERY	37235.23	37778.60	73188.73	64268.92	35788.42
NASHVILLE	36823.14	37365.56	72388.55	158588.13	88310.48
RALEIGH	55412.61	56221.23	108917.76	77398.88	43099.89
CLEVELAND	70724.32	71756.39	139014.12	89423.74	49735.98
COLUMBUS	71298.99	72339.44	140143.67	93742.04	52200.64
DETROIT	150612.63	152810.48	296040.74	205086.44	114203.24
INDIANAPOLIS	39346.33	39920.50	77330.26	60310.87	33584.36
LOUISVILLE	31701.14	32163.74	62311.03	45097.13	25112.52
PITTSBURGH	72219.45	73273.33	141952.91	123690.32	68877.47
RICHMOND	33495.09	33983.87	65837.18	55342.36	30917.62
WASHINGTON DC	58935.22	59795.24	115841.72	96832.91	53921.81
CHICAGO	80725.48	81903.48	158672.16	123511.88	68778.10
ST LOUIS	49517.72	50240.32	97330.90	88253.09	49144.10
KANSAS CITY	26929.98	27221.51	52736.40	45170.80	25153.55
MINNEAPOLIS	66779.63	67754.13	131260.52	59347.05	33047.65
OMAHA	22532.83	22861.64	44293.01	29342.67	16339.59
PEORIA	54523.46	55319.11	107170.07	57511.99	32025.79
MILWAUKEE	41993.18	42504.51	82344.28	56115.59	31248.20
ALBUQUERQUE	29542.40	29973.50	58067.86	45047.12	25084.67
DALLAS	19381.67	19664.50	38096.17	29227.09	16275.23
DENVER	23557.84	24003.07	46501.31	42678.10	23765.48
HOUSTON	22571.47	22900.85	44365.97	41827.15	23291.62
LITTLE ROCK	30295.96	30739.07	59551.01	49608.06	27624.45
NEW ORLEANS	26873.62	27265.78	52822.18	54091.96	30121.33
OKLAHOMA CITY	20324.96	20317.18	39360.61	27154.80	15121.26
SAN ANTONIO	28517.00	28933.14	56052.36	47437.08	26415.54
LOS ANGELES	136973.27	138972.08	269231.53	208590.96	116154.74
PORTLAND	62579.09	63492.29	123004.02	78258.62	43578.64
SAN DIEGO	100255.06	101718.06	197059.06	153739.30	85610.37
SAN FRANCISCO	148362.94	150527.96	291618.81	235215.86	136980.93
SEATTLE	63793.05	64713.82	125370.51	91964.43	51210.78

TABLE A-39

TOTAL POPULATION  
(In thousands)

NRD	EY-1976L	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	261.0	269.3	274.8	280.5	281.9
BOSTON	386.9	399.2	407.3	415.9	417.9
BUFFALO	236.6	244.0	249.0	254.2	255.5
NEW YORK	435.1	448.9	458.0	467.7	470.0
HARRISBURG	181.7	187.5	191.3	195.3	196.3
PHILADELPHIA	275.8	284.5	290.3	296.4	297.8
NEWARK	235.6	243.0	248.0	253.2	254.5
ATLANTA	177.0	182.6	186.3	190.2	191.2
COLUMBIA	186.0	191.3	195.8	199.9	200.8
JACKSONVILLE	156.5	161.4	164.7	168.2	169.0
MEMPHIS	183.4	189.2	193.0	197.1	198.1
MIAMI	196.3	202.5	206.7	211.0	212.1
MONTGOMERY	178.3	183.9	187.7	191.6	192.6
NASHVILLE	204.4	210.9	215.2	219.7	220.8
RALEIGH	294.1	303.4	309.5	316.0	317.6
CLEVELAND	234.0	241.4	246.4	251.5	252.8
COLUMBUS	261.8	270.0	275.6	281.3	282.7
DETROIT	406.2	419.0	427.6	436.6	438.7
INDIANAPOLIS	168.7	174.0	177.6	181.3	182.2
LOUISVILLE	203.9	210.4	214.7	219.2	220.2
PITTSBURGH	195.7	201.8	205.0	210.3	211.3
RICHMOND	204.8	211.3	215.6	220.1	221.2
WASHINGTON DC	283.8	292.7	298.7	305.0	306.5
CHICAGO	346.7	357.6	364.9	372.6	374.4
ST LOUIS	222.5	229.5	234.2	239.1	240.3
KANSAS CITY	193.6	204.9	209.1	213.5	214.5
MINNEAPOLIS	199.6	205.9	210.1	214.6	215.6
OMAHA	186.3	192.2	196.1	200.2	201.2
PEDRIA	239.3	246.8	251.9	257.2	258.4
MILWAUKEE	199.1	205.4	209.6	211.9	215.0
ALBUQUERQUE	144.5	149.1	152.1	155.3	156.1
DALLAS	206.1	212.6	217.0	221.5	222.6
DENVER	172.5	177.9	181.5	185.4	186.3
HOUSTON	173.7	179.2	182.9	186.7	187.6
LITTLE ROCK	153.4	158.3	161.5	164.9	165.7
NEW ORLEANS	140.0	144.4	147.3	150.4	151.2
OKLAHOMA CITY	129.0	133.1	135.8	138.7	139.4
SAN ANTONIO	167.7	173.0	176.5	180.2	181.1
LOS ANGELES	421.0	434.3	443.2	452.5	454.7
PORTLAND	212.1	218.8	223.3	228.0	229.1
SAN DIEGO	326.1	336.4	343.3	350.5	352.2
SAN FRANCISCO	500.9	516.7	527.2	538.3	541.0
SEATTLE	251.8	259.8	265.1	270.6	271.9

TABLE A-40

## BLACK PERCENT

	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	6.5	6.5	6.9	6.9	6.9
BOSTON	3.2	3.2	3.2	3.2	3.2
BUFFALO	7.1	7.1	7.1	7.1	7.1
NEW YORK	20.0	20.0	20.0	20.0	20.0
PARISEURG	3.7	3.7	3.7	3.7	3.7
PHILADELPHIA	18.1	18.1	18.1	18.1	18.1
NEWARK	12.1	12.1	12.1	12.1	12.1
ATLANTA	25.2	25.2	25.3	25.3	25.3
COLUMBIA	34.0	34.0	34.0	34.0	34.0
JACKSONVILLE	20.5	20.5	20.5	20.5	20.5
MEMPHIS	36.1	36.1	36.1	36.1	36.1
MIAMI	16.4	16.4	16.4	16.4	16.4
PONTICPERY	32.6	32.6	32.6	32.6	32.6
NASHVILLE	12.2	12.2	12.2	12.2	12.2
RALEIGH	27.6	27.6	27.6	27.6	27.6
CLEVELAND	11.3	11.3	11.3	11.3	11.3
COLUMBUS	5.1	5.1	5.1	5.1	5.1
DETROIT	12.5	12.5	12.5	12.5	12.5
INDIANAPOLIS	7.5	7.5	7.5	7.5	7.5
LOUISVILLE	8.2	8.2	8.2	8.2	8.2
PITTSBURGH	5.8	5.8	5.8	5.8	5.8
RICHMOND	24.0	24.0	24.0	24.0	24.0
WASHINGTON DC	26.6	26.6	26.6	26.6	26.6
CHICAGO	19.0	19.0	19.0	19.0	19.0
ST LOUIS	10.5	10.5	10.5	10.5	10.5
KANSAS CITY	7.0	7.0	7.0	7.0	7.0
MINNEAPOLIS	1.2	1.2	1.2	1.2	1.2
OMAHA	1.8	1.8	1.8	1.8	1.8
PEORIA	4.3	4.3	4.3	4.3	4.3
MILWAUKEE	3.9	3.9	3.9	3.9	3.9
ALEXANDERQUE	4.4	4.4	4.4	4.4	4.4
CALLAS	15.9	15.9	15.9	15.9	15.9
DENVER	4.1	4.1	4.1	4.1	4.1
HOLSTON	22.9	22.9	22.9	22.9	22.9
LITTLE ROCK	26.0	26.0	26.0	26.0	26.0
NEW ORLEANS	30.6	30.6	30.6	30.6	30.6
OKLAHOMA CITY	5.4	5.4	5.4	5.4	5.4
SAN ANTONIO	8.1	8.1	8.1	8.1	8.1
LOS ANGELES	9.5	9.5	9.5	9.5	9.5
PORTLAND	1.9	1.9	1.9	1.9	1.9
SAN DIEGO	6.8	6.8	6.8	6.8	6.8
SAN FRANCISCO	7.1	7.1	7.1	7.1	7.1
SEATTLE	3.4	3.4	3.4	3.4	3.4

TABLE A-41

## NAVY RECRUITERS

NEC	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALBANY	1256	1246	1284	1246	1243
BOSTON	1218	1222	1441	1558	1753
BUFFALO	1232	1214	1298	1253	1355
NEW YORK	1204	1142	1302	1214	1301
PARISBURG	629	688	711	663	801
PHILADELPHIA	927	1053	1341	1122	1252
NEWARK	937	955	959	990	1146
ATLANTA	685	659	901	959	986
COLLEGEIA	547	579	655	710	691
JACKSONVILLE	601	709	1040	1265	1287
MEMPHIS	528	541	697	776	777
MIAMI	631	713	975	1113	1047
MONTECERY	624	644	706	815	872
NASHVILLE	572	620	814	828	926
FALEIGH	726	660	866	850	968
CLEVELAND	1167	1155	1062	926	991
COLUMBUS	1085	1113	1167	1206	1203
DETROIT	1454	1721	1731	1621	1636
INDIANAPOLIS	760	770	733	744	864
LOUISVILLE	702	739	656	699	766
PITTSBURGH	869	858	795	820	972
RICHMOND	622	621	602	712	814
WASHINGTON DC	934	952	844	1036	1102
CHICAGO	1676	1174	1230	1104	1281
ST LOUIS	910	1010	1002	927	996
KANSAS CITY	744	859	917	854	868
MINNEAPOLIS	1105	1062	918	909	969
OMAHA	653	763	656	638	853
PEORIA	652	745	757	831	1104
MILWAUKEE	820	626	591	636	672
ALBUQUERQUE	580	601	583	567	720
CALLAS	979	961	845	888	855
DENVER	745	791	787	771	1648
HOLSTON	623	645	629	624	840
LITTLE ROCK	581	555	541	610	761
NEW ORLEANS	542	458	373	437	454
OKLAHOMA CITY	557	583	526	519	507
SAN ANTONIO	641	677	706	672	724
LOS ANGELES	1747	1829	1734	1800	1852
PORTLAND	976	910	1047	1082	1141
SAN DIEGO	1052	1106	1118	1303	1240
SAN FRANCISCO	2134	2271	1786	2032	2307
SEATTLE	1177	1218	1142	1106	1115

TABLE A-42

## ARMY RECRUITERS

ARC	FY-1976I	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	121	122	118	118	129
BOSTON	141	142	177	177	193
BUFFALO	128	129	125	125	138
NEW YORK	155	155	151	151	165
HARRISBURG	89	89	87	87	95
PHILADELPHIA	107	107	104	104	113
NEWARK	111	111	108	108	118
ATLANTA	59	59	57	57	62
COLUMBIA	53	53	51	51	56
JACKSONVILLE	57	57	55	55	60
MEMPHIS	65	66	64	64	69
MIAMI	73	74	71	71	78
MONTGOMERY	58	58	56	56	61
NASHVILLE	72	72	70	70	77
RALEIGH	102	102	99	99	108
CLEVELAND	127	128	124	124	135
COLUMBUS	151	152	147	147	160
DETROIT	155	156	190	190	207
INDIANAPOLIS	53	53	91	91	99
LOUISVILLE	89	89	87	87	95
PITTSBURGH	81	81	79	79	86
RICHMOND	59	59	57	57	62
WASHINGTON DC	123	124	120	120	131
CHICAGO	152	153	148	148	161
ST LOUIS	101	101	98	98	107
KANSAS CITY	51	51	89	89	97
MINNEAPOLIS	116	116	113	113	123
OMAHA	78	79	76	76	83
PEORIA	137	138	134	134	146
MILWAUKEE	50	50	88	88	96
ALBUQUERQUE	79	79	77	77	84
DALLAS	88	88	86	86	94
DENVER	82	82	80	80	87
HOUSTON	74	74	72	72	79
LITTLE ROCK	64	65	63	63	68
NEW ORLEANS	50	50	48	48	53
OKLAHOMA CITY	55	55	53	53	58
SAN ANTONIO	61	62	60	60	65
LOS ANGELES	151	152	186	186	203
PORTLAND	112	112	109	109	119
SAN DIEGO	132	132	129	129	140
SAN FRANCISCO	247	248	241	241	263
SEATTLE	109	109	106	106	115

TABLE A-43

## AIR FORCE RECRUITERS

NRE	FY-1976	FY-1977	FY-1978	FY-1979	FY-1980
ALBANY	51	50	50	51	59
ALBUQUERQUE	70	70	70	70	82
ALBUQUERQUE	54	54	54	54	63
ALBUQUERQUE	49	48	48	49	57
ALBUQUERQUE	34	33	33	34	39
ALBUQUERQUE	42	42	42	42	49
ALBUQUERQUE	46	45	45	46	53
ALBUQUERQUE	29	28	28	29	33
ALBUQUERQUE	22	21	21	22	25
ALBUQUERQUE	29	29	29	29	34
ALBUQUERQUE	28	27	27	28	32
ALBUQUERQUE	42	42	42	42	49
ALBUQUERQUE	28	27	27	28	32
ALBUQUERQUE	41	41	41	41	48
ALBUQUERQUE	41	41	41	41	48
ALBUQUERQUE	55	54	54	55	64
ALBUQUERQUE	63	62	62	63	73
ALBUQUERQUE	33	32	32	33	38
ALBUQUERQUE	30	30	30	30	35
ALBUQUERQUE	42	42	42	42	49
ALBUQUERQUE	21	21	21	22	25
ALBUQUERQUE	41	40	40	40	47
ALBUQUERQUE	42	42	42	42	49
ALBUQUERQUE	39	38	38	39	45
ALBUQUERQUE	25	25	25	25	29
ALBUQUERQUE	35	35	35	35	41
ALBUQUERQUE	29	29	29	29	34
ALBUQUERQUE	30	30	30	30	35
ALBUQUERQUE	32	32	32	32	37
ALBUQUERQUE	23	23	23	23	27
ALBUQUERQUE	27	27	27	27	31
ALBUQUERQUE	28	28	28	28	33
ALBUQUERQUE	27	27	27	27	32
ALBUQUERQUE	24	24	24	24	28
ALBUQUERQUE	20	20	20	20	23
ALBUQUERQUE	22	21	21	22	25
ALBUQUERQUE	23	22	22	23	26
ALBUQUERQUE	70	70	70	70	82
ALBUQUERQUE	43	43	43	43	50
ALBUQUERQUE	41	41	41	41	48
ALBUQUERQUE	77	76	76	77	90
ALBUQUERQUE	43	43	43	43	50

TABLE A-44

## MARINE CORPS RECRUITERS

REC	EY-1976I	EY-1977	EY-1978	EY-1979	EY-1980
ALEANY	53	52	52	52	55
BOSTON	76	74	74	75	79
BUFFALO	54	53	53	53	56
NEW YORK	77	75	75	76	80
PARRISEBURG	43	41	41	42	44
PHILADELPHIA	62	60	60	61	64
NEWARK	43	41	41	42	44
ATLANTA	27	26	26	27	28
COLUMBIA	25	25	25	25	26
JACKSONVILLE	30	29	29	30	31
MEMPHIS	29	28	28	29	30
MIAMI	45	44	44	45	47
MONTGOMERY	23	23	23	23	24
NASHVILLE	32	31	31	32	33
RALEIGH	42	40	40	41	43
CLEVELAND	58	56	56	57	60
COLUMBUS	55	53	53	54	57
DETROIT	107	104	104	105	111
INDIANAPOLIS	38	37	37	37	39
LOUISVILLE	39	38	38	38	40
PITTSBURGH	44	42	42	43	45
RICHMOND	36	35	35	35	37
WASHINGTON DC	55	53	53	54	57
CHICAGO	64	61	61	63	67
ST LOUIS	49	48	48	49	51
KANSAS CITY	41	39	39	40	42
MINNEAPOLIS	50	49	49	50	52
OMAHA	43	41	41	42	44
PEORIA	56	54	54	55	58
MILWAUKEE	59	57	57	58	61
ALBUQUERQUE	29	28	28	29	30
DALLAS	24	23	23	24	25
DENVER	27	26	26	27	28
FORTSON	28	27	27	28	29
LITTLE ROCK	28	27	27	28	29
NEW ORLEANS	24	24	24	24	25
OKLAHOMA CITY	20	19	19	19	20
SAN ANTONIO	23	23	23	23	24
LOS ANGELES	67	64	64	65	90
PORTLAND	49	48	48	49	51
SAN DIEGO	47	46	46	47	49
SAN FRANCISCO	81	79	79	80	84
SEATTLE	45	44	44	45	47



APPENDIX B

COMPARISON OF RESULTS WITH THOSE OF THE GATES COMMISSION

## APPENDIX B

### COMPARISON OF RESULTS WITH THOSE OF THE GATES COMMISSION

This appendix compares our results regarding pay and unemployment with those obtained by the Gates Commission. Most Gates Commission researchers analyzed the supply of mental group 1-3 white nonprior service male enlistments. However, Gray [15] also analyzed the supply of white HSGs for the Navy. To make our studies comparable, we also analyzed the supply of white 1-3s and white HSGs.

We will compare our results\* with Gates Commission researchers Fechter [8], Gray [15] and Cook [4]. Fechter and Cook used quarterly time-series data from 1Q58-4Q68. Fechter studied the Army, while Cook analyzed Air Force enlistment supply. Gray studied each service using cross-sectional data (34 state groups) in 1967.

There is a great deal of consistency in the results (see table B-1). For white 1-3s, all studies found high pay elasticities for the Army and low elasticities for the Marine Corps. For the Navy, the magnitudes are very similar, i.e., 0.82 for Gray and 0.88 for CNA. All studies found substantial pay elasticities for the Air Force, but estimates obtained by Gray and Cook are larger than ours.

The only study of white HSGs was undertaken by Gray on Navy enlistments. He found that the pay elasticity for white HSGs was almost twice as large as the elasticity for white 1-3s. We also find that the pay elasticity declines when non-HSGs are included in the cohort analyzed. It is likely that this is caused, both then and now, by low requirements for 1-3 non-HSGs.

Although the Gates Commission researchers used youth unemployment data to measure unemployment, they found no effect of unemployment on enlistment supply. Our study estimates a relatively small effect of the overall unemployment rate on enlistment supply of white 1-3s for all services.

Thus, there is a great deal of consistency in the results among the studies: pay increases DoD enlistment supply, but the effect is probably greatest for the Army and smallest for the Marine Corps; probably because of demand limitations, the estimated pay elasticity for white HSGs is larger than that for white 1-3s; and compared to pay, unemployment seems to have a relatively small effect on enlistment supply.

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\* Obtained with the models that included other services' recruiters.

TABLE B-1

COMPARISON OF RESULTS: CNA AND THE GATES COMMISSION ESTIMATES  
OF PAY AND UNEMPLOYMENT ELASTICITIES

Researchers (data)	Service	White 1-3s		White HSGs	
		Pay	Unemployment	Pay	Unemployment
Fechter					
1 Quarterly time-series					
1 Q58-4Q68	Army	1.25	No effect	NA	NA
Cook					
1 Quarterly time-series					
1Q58-2Q67	Air Force	2.23	0.24	NA	NA
Gray					
34 state groups, 1967	Army	1.77 <sup>a</sup>	NA	NA	NA
	Navy	0.82	NA	1.56	NA
	Air Force	1.27	NA	NA	NA
	Marine Corps	-0.12	NA	NA	NA
CNA					
43 Navy recruiting districts, FY 1976T-80	Army	1.50	0.08	2.13	0.14
	Navy	0.89	0.23	1.05	0.32
	Air Force	0.85	0.10	1.18	0.13
	Marine Corps	0.36	0.21	0.58	0.32

<sup>a</sup> Gray used "expected" civilian earnings, i.e., civilian earnings times one minus the unemployment rate.

APPENDIX C

ALTERNATIVE MEASURES OF CIVILIAN EARNINGS

## APPENDIX C

### ALTERNATIVE MEASURES OF CIVILIAN EARNINGS

Because it is difficult to obtain regional data on earnings of youth, previous researchers have used average earnings of all production workers as a proxy. Unfortunately it is a poor proxy that tends to seriously bias the estimate of the pay elasticity. To illustrate this, we report estimates of the pay elasticity for 1-3A HSGs using two measures of relative military pay. One is based on average hourly earnings of youth times 2,080 hours (used in our study). The other is constructed using average hourly earnings of all production workers in the NRD times 2,080 hours. Pay elasticities are from regression models that were estimated with data from FY 1977-79.\*

The  $R^2$  of the equation and the t-value of the pay elasticity are both improved substantially when earnings of youth are used (see table C-1). If average hourly earnings is used, the pay elasticity is reduced by 50-75 percent.

TABLE C-1

REGRESSION RESULTS FOR NAVY 1-3A HSGs USING ALTERNATIVE  
MEASURES OF RELATIVE MILITARY PAY

<u>Service</u>	<u>Youth Earnings</u>		<u>Average Earnings</u>	
	<u>Coefficient</u>	<u>R<sup>2</sup></u>	<u>Coefficient</u>	<u>R<sup>2</sup></u>
Navy	1.09 (5.85)	0.67	0.44 (3.08)	0.61
Army	2.20 (10.59)	0.68	0.56 (2.81)	0.41
Air Force	1.31 (6.75)	0.62	0.67 (4.51)	0.56
Marine Corps	0.76 (2.93)	0.66	0.25 (1.31)	0.64

\* The models included other services' recruiters.

The simple correlations between 1-3A HSGs and the two measures of pay are given in table C-2. For earnings of youth, the correlation has a positive sign for all services except the Marine Corps; and for the Army, Navy, and Air Force, the magnitude is about 0.4. For average earnings of all workers, the magnitude is close to zero for all services, and except for the Air Force, the sign is negative.

TABLE C-2  
SIMPLE CORRELATIONS BETWEEN PAY VARIABLES AND 1-3 HSGs

<u>Variables</u>	<u>Youth earnings</u>	<u>Average earnings</u>
Navy	0.37	-0.04
Army	0.45	-0.05
Air Force	0.36	0.03
Marine Corps	-0.07	-0.34
Youth earnings	1.00	0.40

The correlation between the two NRD-level measures of pay is only 0.4, which explains why average earnings of all production workers is a poor proxy for youth earnings across NRDs. Furthermore, over time, the aggregate growth rate of average earnings is a poor proxy for the aggregate growth rate of youth earnings. Trends in these growth rates are given in table C-3. A regression of the growth rate of earnings of youth ( $g_y$ ) on the growth rate of average hourly earnings of all workers ( $g_a$ ) was estimated with the data in table C-3. The results are as follows:

$$g_y = 13.8 + -0.56 g_a \quad R^2 = .05 \quad (C-1)$$

(1.73)    (0.62)                      F (1,7) = 0.39

Statistically, there is no effect of  $g_a$  on  $g_y$ , and  $g_a$  has the wrong sign! Thus, the growth rate of average earnings of all workers should not be used as a proxy for the growth rate of earnings of youth.

Our study shows that earnings of youth are an important supply factor. To prevent declines in the supply of enlistments, military pay must increase at the same rate as the civilian earnings of youth, holding other things constant. Unfortunately, it takes almost two years for earnings of youth to become available from the Current Population

Surveys, so it cannot be used in determining an appropriate pay increase this year for enlistees. The data that are available, the growth rate of earnings of all production workers, are not useful for indexing military pay.\*

TABLE C-3  
GROWTH RATES OF CIVILIAN EARNINGS, FY 1973-81

<u>Fiscal year</u>	<u>Youths<sup>a</sup></u>	<u>All production Workers<sup>b</sup></u>	<u>Difference (youths-all)</u>
1973	13.9	6.8	7.1
1974	10.8	6.9	3.9
1975	8.5	10.2	-1.7
1976	2.4	7.8	-5.4
1977	7.0	10.4	-3.4
1978	14.7	9.2	5.5
1979	8.0	9.1	-1.1
1980	7.3 (est)	7.9	-0.6 (est)
1981	7.3 (est)	11.1 (est)	-3.8 (est)

<sup>a</sup>Growth rate of year round fulltime earnings for 14-19 year old civilian males from Current Population Surveys.

<sup>b</sup>Growth rate of earnings of all production workers from Employment and Earnings.

\* The median earnings of full-time wage and salary workers are now published quarterly in Employment and Earnings. If found to be correlated strongly with enlistments, this data series would serve.

APPENDIX D

ANALYSIS OF STUDENT-AID PROGRAMS



TABLE D-2

EFFECTS OF STUDENT-AID PROGRAMS ON  
ENLISTMENT SUPPLY IN FY 1977-79

<u>Service</u>	<u>All HSGs</u>	<u>1-3A HSGs</u>
Navy	-0.0026 (0.062) <sup>a</sup>	-0.038 (0.78)
Army	-0.0068 (0.12)	-0.026 (0.47)
Air Force	0.074 (1.70)	0.080 (1.63)
Marine Corps	0.18 (3.30)	0.18 (2.76)

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<sup>a</sup>t-value in parentheses.

APPENDIX E

ANALYSIS OF THE EFFECT OF NAVY ADVERTISING  
ON NAVY ENLISTMENT SUPPLY

## APPENDIX E

### ANALYSIS OF THE EFFECT OF NAVY ADVERTISING ON NAVY ENLISTMENT SUPPLY

#### OBJECTIVE

We analyze the effect of Navy advertising on Navy enlistment supply in FY 1977-79. Estimates are obtained using regression analysis with NRD-level data. This information is used to estimate the cost-effectiveness of using advertising to generate enlistments.

Besides local advertising, through help wanted ads in local newspapers, we studied two broad categories of national advertising: (1) broadcast, i.e., TV and radio, and (2) print, i.e., direct mail, newspapers, magazines, and billboards. Trends in advertising expenditures are given in table E-1.

TABLE E-1

#### NAVY ADVERTISING IN FY 1977-79

Type of advertising (\$m) <sup>a</sup>	1977	1978	1979
Broadcast <sup>b</sup>	3.1	4.1	4.3
Print <sup>c</sup>	1.9	1.0	0.6
Local	1.5	2.4	1.8

<sup>a</sup>In constant 1977 dollars.

<sup>b</sup>Over FY 1977-79, about equally split between TV and radio advertising.

<sup>c</sup>Over FY 1977-79, 51 percent for magazines, 23 percent direct mail, 26 percent for outdoor, and less than 1 percent for newspapers and billboards.

We found significant effects of national advertising but no effect of local advertising. We therefore dropped local advertising as a variable. The results for national advertising are reported below.

#### BACKGROUND

A primary purpose of national advertising is the generation of leads for recruiters. Recruiters follow up these leads and convert them into contracts. A person becomes a lead after he calls or mails the Navy Opportunity Information Center (NOIC). The NOIC lead is put into

the Navy Advertising Leads Tracking System (NALTS), which screens it for legitimacy and then passes it on to a local recruiter. Trends in NOIC leads are given in table E-2.

TABLE E-2

NOIC LEADS (000) IN FY 1977-79

1977	146
1978	161
1979	111

METHOD

According to the Navy Recruiting Command, most leads processed by NALTS result from direct mail advertising. It is likely that broadcast advertising creates awareness and interest in the Navy, which increases the productivity of direct mail advertising in generating NOIC leads.

Recognizing the purpose of direct mail and broadcast advertising is to generate leads, we estimate their effects on enlistment supply through their effects on leads (see figure E-1). We use regression analysis to estimate the relationship between (1) advertising and NOIC leads, and (2) NOIC leads and Navy enlistment supply.\*

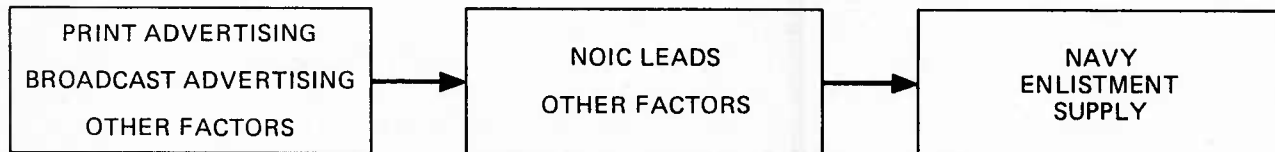


FIG. E-1: ADVERTISING, NOIC LEADS, AND NAVY ENLISTMENT SUPPLY

\* A similar approach was taken by Morey [24].

## ADVERTISING AND LEADS

Besides advertising, NOIC leads are likely to be affected by many of the same supply factors that influence enlistment supply. Thus, we also include the same economic and demographic factors in the leads equation that are in the enlistment supply model (equation 1). However, we do not expect recruiters to affect NOIC leads so they are not included in the leads equation.\*

The regression model for NOIC leads is given in equation E-1.

$$\begin{aligned} \text{LLEADS} = & b_0 + b_1 \text{LTVR} + b_2 \text{LPRINT} + b_3 \text{LRPAY} + b_4 \text{LUNEM} + \\ & b_5 \text{LETAY} + b_6 \text{LETAC} + b_7 \text{LPOP} + b_8 \text{BLK} + \text{error term} \end{aligned} \quad (\text{E-1})$$

where

LLEADS = logarithm of NOIC leads per population

LTVR = logarithm of broadcast advertising (adjusted for inflation) per population

and

LPRINT = logarithm of print advertising (adjusted for inflation) per population.

Definitions of the other factors are the same as in equation 1.\*\*

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\* We tested this hypothesis and found no effect of any service's recruiters on NOIC leads.

\*\* Since the period FY 1977-79 is after the change over to VEAP, the dummy variable for the loss of GI Bill benefits is excluded.

## LEADS AND ENLISTMENTS

We simply add LLEADS as an explanatory factor in equation 1:

$$\begin{aligned} LH = & a_0 + a_1 LRPAY + a_2 LUNEM + a_3 LETAY + a_4 LETAC + a_5 LNREC + a_6 \\ & + LAREC + a_7 LFREC + a_8 LMREC + a_9 LPOP + a_{10} BLK + a_{11} LLEADS + \text{error} \\ & \text{term.} \end{aligned} \quad (E-2)$$

## ESTIMATION PROCEDURE

Since this is a two-equation recursive system, we estimate each equation in turn using ordinary least squares.\*

The Chow test for pooling indicated that the data could be pooled to estimate enlistment (equation E-2). The leads equation requires a dummy variable in FY 1979 to pass the Chow test. However, the estimates of elasticities are essentially unaffected by the inclusion of this dummy variable, so we exclude it and report the model estimated without the dummy variable.

## RESULTS

Estimates of equations E-1 and E-2 are reported in tables E-3 and E-4. For comparison purposes, we also report the enlistment equation estimated with data for FY 1977-79, but without the variable LLEADS.

## THE EFFECT OF LEADS ON ENLISTMENTS

Leads have a significant effect on the supply of high school graduates. The elasticities are 0.20 for all HSGs, 0.25 for 1-3A HSGs, and 0.26 for 1-2 HSGs.

### Analysis Of NOIC Leads

When the effects of economic and demographic factors are fixed, advertising variables have a significant effect on leads: the elasticity of print is 0.13 and broadcast is 0.23. Pay and unemployment have strong effects on leads. Thus, civilian earnings opportunities have a significant effect on the propensity of individuals to contact the Navy and then to sign contracts. Although we found earlier that ETA

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\* To test whether the system is recursive, we also estimated the two equations using a three stage least squares approach. This approach yielded no real differences in the estimates of both equations.

TABLE E-3

ESTIMATES OF NAVY REGRESSION MODELS WITH AND WITHOUT NOIC LEADS  
AS AN INDEPENDENT VARIABLES

Explanatory variables	All HSG		1-3A HSGs		1-2 HSGs	
	With leads	Without leads	With leads	Without leads	With leads	Without leads
Constant	1.29 <sup>a</sup> (2.47)	1.51 (2.76)	1.37 (2.33)	1.65 (2.64)	1.07 (1.75)	1.37 (2.10)
Relative pay	0.82 (4.96)	1.03 (6.36)	0.81 (4.37)	1.09 (5.85)	0.73 (3.78)	1.02 (5.27)
Unemployment	0.30 (4.70)	0.38 (5.97)	0.23 (3.09)	0.33 (4.45)	0.21 (2.74)	0.32 (4.12)
ETA youth	-0.078 (-1.00)	-0.036 (-0.42)	-0.16 (-1.83)	-0.11 (-1.14)	-0.2 (-2.17)	-0.14 (-1.46)
ETA countercyclical	-0.14 (-3.05)	-0.10 (-2.18)	-0.17 (-3.04)	-0.11 (-2.02)	-0.17 (-3.14)	-0.12 (-2.22)
Navy recruiters	0.36 (3.93)	0.38 (3.95)	0.37 (3.55)	0.39 (3.55)	0.43 (4.02)	0.46 (3.99)
NOIC leads	0.20 (3.73)	NA -	0.25 (4.25)	NA -	0.26 (4.29)	NA -

TABLE E-3 (Cont'd)

Explanatory variables	All HSG		1-3A HSGs		1-2 HSGs	
	With leads	Without leads	With leads	Without leads	With leads	Without leads
Army recruiters	0.22 (1.55)	0.29 (1.94)	0.18 (1.11)	0.26 (1.55)	0.197 (1.19)	0.29 (1.63)
Air Force recruiters	0.54 (4.35)	0.50 (3.85)	0.65 (4.66)	0.61 (4.04)	0.65 (4.44)	0.60 (3.83)
Marine Corps recruiters	-0.21 (-2.20)	-0.13 (-1.31)	-0.096 (-0.91)	.0076 (.069)	-0.06 (-0.56)	0.047 (0.41)
Percent Black population	0.005 (2.33)	.0085 (4.11)	-0.004 (-1.84)	-0.00008 (-.034)	-0.007 (-2.6)	-0.002 (-0.80)
Total population	0.15 (2.69)	0.10 (1.75)	0.22 (3.48)	0.16 (2.37)	0.25 (3.86)	0.19 (2.72)
R <sup>2</sup>	0.72	0.69	0.71	0.67	0.72	0.68
Regression F	27.99 (11,117)	26.4917 (10,118)	26.47 (11,117)	23.87 (10,118)	27.35 (11,117)	24.63 (10,118)
SER <sup>b</sup>	0.15	0.16	0.17	0.18	0.18	0.19

<sup>a</sup>Given in parentheses are t-values for parameter estimates.

<sup>b</sup>Standard error of the regression.



TABLE E-4  
ANALYSIS OF NOIC LEADS

<u>Explanatory variables</u>	<u>Estimates</u>
Constant	-1.16 (1.60) <sup>a</sup>
Relative pay	0.75 (2.86)
Unemployment	0.40 (3.55)
ETA youth	0.19 (1.47)
ETA countercyclical	0.19 (2.46)
Percent black population	0.010 (4.08)
Total population	-0.24 (2.96)
Print advertising	0.13 (3.81)
Broadcast advertising	0.23 (2.25)
R <sup>2</sup>	0.55
Regression F	18.57
Pooling F	1.94 <sup>b</sup>
SER <sup>c</sup>	0.26

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<sup>a</sup>Given in parentheses are t-values for parameter estimates

<sup>b</sup>Significant at 0.5 level

<sup>c</sup>Standard error of the regression.

programs reduce enlistment supply, our results here indicate they increase leads. Some ETA programs refer individuals to the military, and ETA programs may improve their chances of doing well on the ASVAB.\* We will show that in spite of positive effects of ETA programs on leads, their net effect is to reduce the supply of HSGs.

#### The Effect Of Advertising On Enlistment Supply

Substitution of equation E-1 into E-2 yields an enlistment equation in terms of advertising variables. These "reduced form" equations are given in table E-5. The elasticities are low, ranging from .026 to .034 for print and .046 to .060 for broadcast. Thus, even large changes in advertising will have only small effects on enlistment supply.\*\*

#### The Cost Of Generating HSGs With Advertising

Although advertising has a small effect, in FY 1979 increases in advertising would have been the least costly way of generating Navy contracts (see table E-6). The cost per 1-3A HSG would have been \$2,400 for broadcast and \$700 for print. These costs are substantially below the \$5,800 cost of generating a 1-3A HSG for the Navy by using Navy recruiters. However, the effect of advertising is small and its productivity falls quickly,\*\*\* so it cannot be used to generate large increases in enlistment supply. Still, to achieve an optimum mix of Navy recruiting resources, Navy advertising should be increased absolutely and relative to Navy recruiters.\*\*\*\*

#### DATA

Means and standard deviations of regression variables are reported in table E-7. Correlations among independent variables are given in table E-8. Data at the NRD level for FY 1977-79 on NOIC leads as well

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\* This is probably more often the case for dropouts than for high school graduates.

\*\* This probably explains why it has been so difficult to measure an effect of advertising. It has a relatively small effect that can easily be swamped by other factors, such as pay and recruiters.

\*\*\* Analysis of the marginal product function, i.e.,  $\frac{MHSG}{MADV}$ , shows that the marginal productivity of advertising falls by about 9.5 percent when advertising is increased by 10 percent.

\*\*\*\* Our results are in contrast with Morey's [24]. He found a small effect of local advertising and almost no effect of national advertising. However, both studies yield small effects of advertising as a whole and high productivity per dollar expended.

TABLE E-5

NAVY ENLISTMENT SUPPLY AS A FUNCTION OF PRINT  
AND BROADCAST ADVERTISING

<u>Variable</u>	<u>HSGs</u>	<u>1-3A HSGs</u>	<u>1-2 HSGs</u>
Constant	1.058	1.079	0.768
Relative pay	0.970	0.998	0.925
Unemployment	0.380	0.330	0.314
ETA youth	-0.040	-0.113	-0.151
ETA countercyclical	-0.102	-0.123	-0.121
Navy recruiters	0.360	0.370	0.430
Army recruiters	0.220	0.180	0.197
Air Force recruiters	0.540	0.650	0.650
Marine Corps recruiters	-0.210	-0.096	-0.060
Percent black population	0.007	-0.002	-0.004
Total population	0.102	0.160	0.188
Print advertising	0.026	0.033	0.034
Broadcast advertising	0.046	0.058	0.060

as print and broadcast advertising (both in constant 1977 dollars) are given in tables E-9 through E-11.\* The NOIC leads and advertising data were provided by the Navy Recruiting Command.\*\*

Advertising expenditures were adjusted for inflation using a McKann-Erickson advertising price index. The base year is 1977. For 1978, the index is 1.1. For 1979, it is 1.2.

TABLE E-6  
COSTS AND EFFECTS OF A 25 PERCENT INCREASE IN  
NAVY ADVERTISING IN FY 1979

Cohort	Enlistments generated <sup>a</sup>		Cost in FY 1979 (000) <sup>b</sup>		Cost per enlistee	
	Print	Broadcast	Print	Broadcast	Print	Broadcast
HSGs	382	675	180	1,150	500	1,700
1-3A HSGs	274	472	180	1,150	700	2,400
1-2 HSGs	192	342	180	1,150	900	3,400

<sup>a</sup>Effects evaluated at the means of enlistments in FY 1977-79.

<sup>b</sup>Advertising costs in FY 1979 are converted to 1977 dollars by using a McKann-Erickson price index for advertising. Its value was 1.20 in FY 1979.

\* Data for other variables were given earlier in appendix A.

\*\* The advertising data were provided by Richard Morey of Duke University, who obtained them from the Navy Recruiting Command.

TABLE E-7

## MEANS AND STANDARD DEVIATIONS OF REGRESSION VARIABLES

	<u>Means</u>	<u>Standard deviation</u>
Navy HSGs	1.67	0.274
Navy 1-3A HSGs	1.11	0.301
Navy 1-2 HSGs	0.71	0.318
Navy recruiters	1.34	0.190
Army recruiters	-0.90	0.191
Air Force recruiters	-1.88	0.190
Marine Corps recruiters	-1.71	0.212
ETA youth	5.31	0.248
ETA countercyclical	5.78	0.449
Unemployment	1.70	0.260
Relative pay	0.11	0.107
Percent black population	13.60	10.029
Total population	5.45	0.326
NOIC leads	2.51	0.374
Broadcast advertising	5.84	0.296
Print advertising	4.49	0.757

TABLE E-8

## CORRELATIONS AMONG INDEPENDENT VARIABLES

	<u>LFREC</u>	<u>LAREC</u>	<u>LNREC</u>	<u>LMREC</u>	<u>LETAC</u>	<u>LETAY</u>	<u>LPOP</u>	<u>LRPAY</u>	<u>LUNEM</u>	<u>BLK</u>	<u>LLEADS</u>	<u>LPINT</u>	<u>LTVR</u>
LFREC	1.0	0.55	0.62	0.49	0.30	0.30	-0.22	0.074	0.20	-0.39	0.20	0.056	0.12
LAREC		1.0	0.35	0.68	0.055	-0.068	0.072	-0.38	0.11	-0.71	-0.14	0.098	-0.013
LNREC			1.0	0.30	0.17	0.13	-0.21	0.036	0.17	-0.32	0.13	0.057	0.066
LMREC				1.0	0.22	0.20	0.035	-0.22	0.083	-0.49	0.11	0.14	0.20
LETAC					1.0	0.63	0.37	-0.11	0.33	-0.084	0.30	-0.26	0.46
LETAY						1.0	0.14	0.14	0.33	0.13	0.47	-0.036	0.40
LPOP							1.0	0.21	0.35	-0.13	-0.11	-0.16	0.10
LRPAY								1.0	0.14	0.33	0.43	0.34	-0.27
LUNEM									1.0	-0.12	0.34	-0.20	-0.16
BLK										1.0	0.35	-0.029	0.099
LLEADS											1.0	0.31	0.17
LPint												1.0	-0.27
LTVR													1.0

TABLE E-9

## NOIC LEADS

ARD	EY-1977	EY-1978	EY-1979
ALBANY	3521	3500	3110
BOSTON	4459	5313	4162
BUFFALO	4000	4419	3233
NEW YORK	11361	12685	9424
HARRISBURG	3442	3778	2184
PHILADELPHIA	5479	6669	4257
NEWARK	4817	4976	3817
ATLANTA	2931	2939	2341
COLUMBIA	3827	5146	2925
JACKSONVILLE	4950	5112	3423
MEMPHIS	3414	3426	2123
MIAMI	4737	4879	3061
MONTGOMERY	2950	3085	2121
NASHVILLE	2358	3096	2055
RALEIGH	2925	3618	2879
CLEVELAND	3207	4077	2346
COLUMBUS	3028	4836	2531
DEIRCI	6581	6907	4162
INDIANAPOLIS	2851	2572	1362
LOUISVILLE	2289	2285	1540
PITTSBURGH	3414	3910	2215
RICHMOND	2364	2364	1579
WASHINGTON DC	5842	6216	4246
CHICAGO	3578	4821	4077
ST LOUIS	2511	3032	2003
KANSAS CITY	1522	2248	1388
MINNEAPOLIS	2840	2240	1756
OMAHA	2349	2039	1379
PEORIA	1490	2560	2012
MILWAUKEE	2146	2296	2755
ALBUQUERQUE	2589	2344	1461
DALLAS	2956	3091	1658
DENVER	2295	1946	1245
HOUSTON	2223	2851	1619
LITTLE ROCK	2022	2170	1507
NEW ORLEANS	2165	2394	1460
OKLAHOMA CITY	1170	1074	829
SAN ANTONIO	2346	2938	1516
LOS ANGELES	4200	4578	3411
PORTLAND	2327	2988	2066
SAN DIEGO	3106	3042	2510
SAN FRANCISCO	5458	4593	3430
SEATTLE	1966	1984	1468

TABLE E-10

## PRINT ADVERTISING

NEQ	EY-1977	EY-1978	EY-1979
ALBANY	3600	53636	11666
BOSTON	55000	27272	15000
BUFFALO	35000	23636	13333
NEW YORK	181000	43636	25833
HARRISBURG	28000	22727	10833
PHILADELPHIA	67000	34545	18333
NEWARK	36000	20909	15833
ATLANTA	45000	4545	11665
COLUMBIA	30000	17272	11666
JACKSONVILLE	35000	32727	10000
MEMPHIS	38000	16363	11666
MIAMI	66000	26363	12500
MONTGOMERY	31000	14545	12500
NASHVILLE	47000	19090	13333
RALEIGH	40000	16363	12500
CLEVELAND	42000	22727	15833
COLUMBUS	48000	909	16666
DETROIT	72000	45454	26666
INDIANAPOLIS	40000	20909	10433
LOUISVILLE	38000	11818	9166
PITTSBURGH	36000	22727	12500
RICHMOND	37000	14545	8333
WASHINGTON DC	69000	20909	13333
CHICAGO	70000	35454	26666
ST LOUIS	28000	23636	14166
KANSAS CITY	43000	22727	15000
MINNEAPOLIS	41000	24545	10000
OMAHA	36000	22727	11665
PEORIA	22000	31818	15000
MILWAUKEE	37000	23636	22308
ALBUQUERQUE	24000	18181	7500
DALLAS	8000	27272	15000
DENVER	38000	18181	7500
HOUSTON	46000	19090	11666
LITTLE ROCK	22000	15454	10000
NEW ORLEANS	24000	909	10833
OKLAHOMA CITY	16000	13636	7500
SAN ANTONIO	32000	18181	10000
LOS ANGELES	46000	909	21666
PORTLAND	28000	30909	14166
SAN DIEGO	64000	20909	36666
SAN FRANCISCO	91000	30000	20833
SEATTLE	31000	19090	8333



TABLE E-11

## BROADCAST ADVERTISING

NEO	EY-1277	EY-1278	EY-1279
ALBANY	71000.00	92727.27	98333.33
BOSTON	100000.00	169090.91	163333.33
BUFFALO	64000.00	95454.55	91666.67
NEW YORK	182000.00	234545.46	223333.33
HARRISBURG	48000.00	81818.18	59166.67
PHILADELPHIA	97000.00	109090.91	141666.67
NEWARK	61000.00	133636.36	120000.00
ATLANTA	57000.00	76363.64	87500.00
COLUMBIA	48000.00	71818.18	58333.33
JACKSONVILLE	42000.00	66363.64	51666.67
MEMPHIS	55000.00	58181.82	76666.67
MIAMI	94000.00	80000.00	109166.67
MONTGOMERY	36000.00	60909.09	68333.33
NASHVILLE	84000.00	69090.91	74166.67
RALEIGH	87000.00	100909.09	88333.33
CLEVELAND	80000.00	136363.64	111666.67
COLUMBUS	80000.00	103636.36	130833.33
DETROIT	122000.00	171818.18	181666.67
INDIANAPOLIS	44000.00	70909.09	65833.33
LOUISVILLE	80000.00	65454.55	69166.67
PITTSBURGH	50000.00	115454.54	110833.33
RICHMOND	79000.00	65454.55	82500.00
WASHINGTON DC	146000.00	105454.55	134166.67
CHICAGO	113000.00	175454.54	187500.00
ST LOUIS	54000.00	90909.09	92500.00
KANSAS CITY	46000.00	77272.73	105000.00
KANSAS CITY	62000.00	80909.09	66666.67
MINNEAPOLIS	40000.00	68181.82	55833.33
OMAHA	32000.00	92727.27	104166.67
PERRIA	39000.00	68181.82	146190.39
MILWAUKEE	24000.00	41818.18	30833.33
ALBUQUERQUE	104000.00	72727.27	78333.33
DALLAS	44000.00	56363.64	69166.67
DENVER	36000.00	86363.64	85000.00
HOUSTON	37000.00	66363.64	55000.00
LITTLE ROCK	39000.00	70909.09	58333.33
NEW ORLEANS	43000.00	63636.36	60000.00
OKLAHOMA CITY	36000.00	60000.00	58333.33
SAN ANTONIO	123000.00	218181.82	191666.67
LOS ANGELES	46000.00	90909.09	95833.33
PORTLAND	80000.00	120000.00	105000.00
SAN DIEGO	171000.00	161616.16	211666.67
SAN FRANCISCO	60000.00	106363.64	80000.00
SEATTLE			

APPENDIX F

ESTIMATES OF REGRESSION MODELS WITHOUT DEFLATING  
VARIABLES BY POPULATION

## APPENDIX F

### ESTIMATES OF REGRESSION MODELS WITHOUT DEFLATING VARIABLES BY POPULATION

This appendix estimates the regression model with variables that are not deflated by population. Estimates are obtained for 1-3A HSGs using OLS with data for FY 1976T-80. Both the model including other services' recruiters and the one excluding them are estimated. Compared with the earlier results obtained with deflated variables, there are no changes in the estimates of supply elasticities or their t-values. The estimates are identical to those in tables 8-11 and 14-17, except that by deflating variables, one obtains apparently higher  $R^2$ s and estimates of the t-values of population elasticities (see table F-1).

However, the undeflated independent variables are highly correlated (see table F-2), much more so than suggested by the correlations between deflated variables in table A-2. As further evidence, we related the logarithm of population (dependent variable) to the logarithms of each service's recruiters and ETA expenditures. This model has an  $R^2$  of 0.88, which is larger than the  $R^2$ s given in table F-1. According to Maddala (22), multicollinearity could cause implausible magnitudes for variables, (in our case other services' recruiters and population). Indeed, he feels that implausible magnitudes are an indicator of a multicollinearity problem given the above evidence. As a result, we dropped other services' recruiters from the model.

TABLE F-1

#### POPULATION ELASTICITY ESTIMATES FOR 1-3A HSGs WITHOUT DEFLATING REGRESSION VARIABLES BY POPULATION

<u>Model</u>		<u>Navy</u>	<u>Army</u>	<u>Air Force</u>	<u>Marine Corps</u>
With other services' recruiters	Estimate	0.12	0.36	0.17	-0.08
		(1.03) <sup>a</sup>	(2.50)	(1.31)	0.48
	$R^2$	0.87	0.84	0.83	0.84
Without other other services' recruiters	Estimate	0.42	0.39	0.47	0.27
		(4.34)	(2.71)	(5.24)	(2.20)
	$R^2$	0.82	0.82	0.83	0.83

<sup>a</sup>t-values given in parentheses

TABLE F-2

## CORRELATIONS AMONG INDEPENDENT VARIABLES

	Air Force recruiters	Army recruiters	Navy recruiters	Marine Corps recruiters	ETA countercyclical	ETA youth	Population	Relative military pay	Unemployment	Black percent	VEAP
Air Force recruiters	1.0	0.88	0.87	0.85	0.74	0.82	0.84	-0.19	0.42	-0.34	0.035
Army recruiters		1.0	0.83	0.91	0.66	0.72	0.89	-0.36	0.35	-0.45	0.0033
Navy recruiters			1.0	0.79	0.69	0.75	0.83	-0.26	0.35	-0.31	0.093
Marine Corps recruiters				1.0	0.70	0.77	0.85	-0.28	0.35	-0.36	-0.0083
ETA countercyclical					1.0	0.86	0.76	-0.14	0.31	-0.12	0.18
ETA youth						1.0	0.85	-0.13	0.37	-0.03	0.16
Population							1.0	-0.23	0.30	-0.13	0.067
Relative military pay								1.0	0.19	0.31	-0.38
Unemployment									1.0	-0.15	-0.40
Black percent										1.0	0.0
VEAP											1.0

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